U.S. DEPARTMENT OF THE INTERIOR OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT DIRECTIVES SYSTEM	Subject Number: INF-11 Transmittal Number: 663 Date: MAR 12 1991

Subject: Information Resources Management Policies and Procedures Manual

Approval: _____ **Title:** Director

1. Purpose. The purpose of this directive is to provide practical, consistent guidelines for implementation of the Office of Surface Mining Reclamation and Enforcement (OSM), Information Systems Management Program.

   NOTICE: THIS DIRECTIVE REFERS TO THE OSM ADP SERVICES OFFICE AS THE MANAGEMENT INFORMATION SYSTEMS DIVISION. READERS NOTE THAT UNTIL FURTHER NOTICE, THIS OFFICE WILL BE REFERRED TO AS THE ASSISTANT DIRECTOR, INFORMATION SYSTEMS MANAGEMENT.

2. Applicability. This directive applies to all persons and OSM organizational units involved in Automatic Data Processing (ADP) hardware and software, telecommunications equipment and systems, and other information handling mediums.

3. Summary. The attached Information Resources Management (IRM) Policies and Procedures Manual is a comprehensive, consolidated document which describes the Information Systems Management organization, defines the IRM program, and identifies and explains policies and procedures relative to ADP, telecommunications, and data administration.

4. Policies and Procedures. The five chapters in the IRM Policies and Procedures Manual prescribes the goals, responsibilities, policies, and procedures for managing information systems, capabilities, services, and associated resources.

5. Reporting Requirements. None.

6. Effect on other Documents. Supersedes the following:

   a. Directive ADP-2, Bureau Information Resources Security program, dated March 8, 1988.

   b. Directive ADP-3, System Implementation Standards, dated September 1, 1986.

   c. Directive ADP-4, Standardization of Microcomputer Software, dated January 31, 1989.

d. Directive INF-11, Information Systems Management Program, dated October 26, 1982.

7. References. Information Resources Management Policies and Procedures Manual, Appendix B.

8. Effective Date. Upon issuance.

9. Contact. Assistant Director, Information Systems Management (202) 208-2916 or FTS 268-2916.

10. Keywords. Information Systems, Policy, ADP, Telecommunications, Hardware, Software, Computer.

11. Appendix. Information Resources Management Policies and Procedures Manual.

OFFICE OF SURFACE MINING

INFORMATION RESOURCES MANAGEMENT (IRM) POLICIES AND PROCEDURES MANUAL

Division of Management Information Systems
Office of Surface Mining
U.S. Department of the Interior

January 1991

OFFICE OF SURFACE MINING
INFORMATION RESOURCES MANAGEMENT POLICIES AND PROCEDURES

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OFFICE OF SURFACE MINING
INFORMATION RESOURCES MANAGEMENT POLICIES AND PROCEDURES

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MIS ORGANIZATION

MIS ORGANIZATION

1. Purpose

This section describes the organization of the U.S. Department of the Interior (DOI) Office of Surface Mining (OSM) Management Information Systems Division (MIS).

2. Definitions

a. Terms

Information Resources Management. Coordination and direction of the planning, development, acquisition, and use of ADP hardware, software, telecommunications, and personnel/management functions for the purpose of managing the data and information required to fulfill the mission and goals of OSM.

b. Abbreviations

ADP	Automated Data Processing
DOI	Department of the Interior
GSA	General Services Administration
IRM	Information Resources Management
MIS	Management Information Systems Division
OSM	Office of Surface Mining

3. Policy/Procedures

a. Policy

Coordination and management of OSM information resources is provided by the MIS Division Chief, who reports to the Deputy Director for Administration and Finance. The MIS organization is described in OSM Directive OPM–11.

b. Procedures

Changes in the responsibilities of the MIS Division Chief will be effected through the OSM directives system and must be approved by the Director of the Office of Surface Mining.

c. Responsibilities

The MIS Division Chief is responsible for all IRM programs and activities at OSM, including establishing and maintaining policies and programs in the areas of IRM Planning, IRM Program Assessment, Economic Analysis and Life-Cycle

Management, Information Standards, and Information Resources Security. Specific program responsibilities are detailed in Chapter II of this manual.

4. Reporting Requirements

The DOI Departmental Manual specifies reporting requirements for various components of the OSM IRM program. The MIS Division Chief is the Agency IRM Coordinator and, as such, provides the IRM reports required of OSM by DOI, GSA, and others.

5. References

Department of the Interior Departmental Manual, Organization of Office of IRM, 110 DM 10.

OSM Directive OPM–11, Information Systems Management Directorate Organization and Functional Statements.

6. Effect on Other Documents

None

7. Effective Date

Upon issuance

8. Contact

MIS Division Chief

Chapter II

IRM PROGRAM MANAGEMENT

IRM PROGRAM MANAGEMENT

A. PROGRAM DEFINITION, GOALS, AND RESPONSIBILITIES

1. Purpose

This section defines the Office of Surface Mining (OSM) Information Resources Management (IRM) program and identifies associated goals and responsibilities.

2. Definitions

a. Terms

Information Resources Management. Coordination and direction of the planning, development, acquisition, and use of ADP hardware, software, telecommunications, and personnel/management functions for the purpose of managing the data and information required to fulfill the mission and goals of OSM.

b. Abbreviations

ADP	Automated Data Processing
DOI	Department of the Interior
IRM	Information Resources Management
MIS	Management Information Systems Division
OSM	Office of Surface Mining

3. Policy/Procedures

a. Policy

1) The goals of the OSM IRM program are as follows:

- Provide responsible analytical and systems support as required to assist program managers in meeting the various OSM missions.
- Coordinate systems within OSM to prevent or minimize duplication of data and functions and to provide compatibility where feasible.
- Conserve resources and meet identified support needs through the most economical and efficient means available.
- Ensure compliance with regulatory requirements.

- Assist the States in sharing technological advances in the field of information systems as related to the OSM mission in administering Public Law 95–87, the Surface Mining Control and Reclamation Act of 1977 (SMCRA).

2) Some IRM responsibilities may be delegated to other OSM assistant directorates. For example, in some instances ADP procurement authority has been delegated to the field. When IRM responsibilities are delegated, the assistant directorates receiving the IRM control and responsibility will be required to be aware of and comply with pertinent policies and regulations promulgated by OSM, DOI, and/or other Federal authorities. The MIS Division Chief will provide oversight and guidance as needed.

3) The MIS Division Chief is responsible for maintaining a staff with a level of technical and management IRM skills commensurate with IRM requirements.

b. Procedures

None

c. Responsibilities

1) The MIS Division Chief is responsible for the following:

a) Establishing OSM policies for ADP and program informational activities consistent with DOI and Federal requirements.

b) Collecting, maintaining, analyzing, and disseminating data, statistics, and program information in support of the OSM mission.

c) Developing, in a cost-effective manner, new or enhanced management information systems and computer technologies to support new or continuing OSM missions.

d) Identifying and evaluating emerging ADP technologies to support OSM administrative, technical, and programmatic needs.

e) Ensuring that existing management information systems and computer technologies are operated and maintained in an efficient manner in support of the OSM mission.

f) Where required by OSM mission needs, providing support for the management information systems and computer technology requirements of the State regulatory authorities.

2) When delegated IRM authority, Assistant Directors are responsible for:

a) Within the assistant directorate, ensuring compliance with OSM, DOI, and Federal IRM policies and regulations.

b) Maintaining a level of technical and management skills commensurate with mission requirements. To this end, Assistant Directors must maintain an environment that fosters staff development. An essential part of this development is training. Depending upon individual skill levels and professional requirements, training in the following areas may be beneficial:

- Use of commercial software packages
- Application development using a specific package or language
- Hardware
- Telecommunications
- System development life-cycle activities, including training in system development and project management.

A number of options are available for training: vendor-supplied training courses; training developed in-house; or classroom, self-study, hands-on, and computer-based training.

4. Reporting Requirements

None

5. References

Department of the Interior Departmental Manual, Part 375 DM 1, IRM Program Management—Program Definition, Goals, Responsibilities.

OSM Directive OPM–11, Information Systems Management Directorate Organization and Functional Statements.

Office of Management and Budget, OMB Circular A–130, Management of Federal Information Resources.

General Services Administration, Federal Information Resources Management Regulations.

6. Effect on Other Documents

Supersedes OSM Directive INF–11, Information Systems Management Program, 26 October 1982.

7. Effective Date

Upon issuance

8. Contact

MIS Division Chief

B. IRM POLICY AND PROGRAM COORDINATION

1. Purpose

This section describes the development and implementation of Office of Surface Mining (OSM) Information Resources Management (IRM) policies and procedures. It also describes the program coordination organizations available to facilitate this development and implementation.

2. Definitions

a. Terms

IRM Coordinator. Individual appointed by an Assistant Director to serve as the focal point for IRM communication within and across assistant directorates. This includes planning, developing, implementing, and monitoring IRM activities within the assistant directorate.

b. Abbreviations

ADP	Automated Data Processing
DOI	Department of the Interior
GSA	General Services Administration
IRM	Information Resources Management
MIS	Management Information Systems Division
OMB	Office of Management and Budget
OSM	Office of Surface Mining

3. Policy/Procedures

a. Policy

This OSM IRM Policies and Procedures Manual is the authority by which IRM program policy at OSM is established. The OSM IRM program is coordinated and managed by the MIS Division Chief, and all other assistant directorates actively participate in the program. OSM IRM program policy is issued through the OSM directives system. In accordance with the directives system, changes to IRM policy will be initially issued in draft form, will be available for review by interested OSM employees, and will be issued in final form after incorporation of comments. Through the directives system, copies of the directive will be furnished to the DOI Office of Information Resources Management within 30 days of issuance.

To facilitate effective management of information resources, IRM policy development and implementation will be coordinated throughout OSM and with other agencies. To this end, participation in Federal and industry information systems organizations is encouraged.

Primary OSM IRM coordination organizations include:

1) Management Information Systems Field Liaison Program

To facilitate communication throughout OSM, the MIS Field Liaison Program has been established. Each Field Office Director and each Assistant Director is responsible for appointing one or more IRM Coordinators to participate in this program. IRM Coordinators will meet at least twice each year to discuss activities pertinent to ADP and IRM issues across OSM. The MIS Division Chief oversees the MIS Field Liaison Program.

2) MIS Field Liaison Subcommittees

Informal ADP-issue-specific subcommittees have been formed to provide input and comments from a user and field perspective on issues of interest to IRM Coordinators throughout OSM. These groups work with the MIS Field Liaison Program to provide assistance to the MIS Division Chief on ADP issues.

3) OSM ADP System User Groups

A user group is an organization established to communicate application-specific information between the user community and the application developers and/or maintenance personnel. The information communicated relates to the development, use, and planned or potential enhancements of an application system. Official points of contact for OSM user groups formed for major information systems developed for OSM will be established through the MIS Division Chief.

4) Other Government and Industry Organizations and Associations

The MIS Division Chief will ensure that OSM obtains important information regarding current trends in information management and will disseminate this information to affected OSM organizations. The MIS Division Chief will also ensure appropriate OSM participation in departmental and other Government and industry organizations and councils. Examples of these groups are:

Federal and Interdepartmental—
- Departmental-Level Working Group on IRM (Policy), chaired by OMB
- Interagency Telecommunications Committee (advisory committee to GSA)
- Interagency Committee on Automated Data Processing
- Subcommittee: Federal ADP Users Group
- Information Resources Council, established by DOI
- Integrated Software Federal User Group (ISFUG)

Department-Wide/Inter-Bureau—
- Interior Digital Cartographic Coordinating Committee
- Earth Science Data Standards Council

- Information Resources Management Forum (principal internal DOI assembly for program review and advice)

Industry—
- Product-specific user groups (for example, WordPerfect User Support Group).

b. Procedures

1) Any OSM employee may suggest changes to, or comment on, current and/or potential policies and procedures. In commenting on IRM policy and procedures changes:

a) If the comments relate to a draft OSM directive, provide comments in accordance with the memorandum transmitting the draft.

b) If comments relate to an IRM policy/procedure currently in effect or a suggested (new) policy/procedure, send them to the MIS Division Chief.

2) To attend meetings or join IRM organizations and attend meetings/workshops, contact your local IRM Coordinator or the MIS Division Chief.

c. Responsibilities

1) The MIS Division Chief is responsible for overall IRM policy and program coordination, including:

a) Keeping Deputy Directors, Assistant Directors, and Field Office Directors informed of relevant MIS activities through personal contact, periodic newsletters, on-site visits, and chairing ADP user group meetings.

b) Providing a single point of contact and direct hands-on assistance for expeditious handling of user problems.

c) Meeting with IRM Coordinators periodically to help plan and review system development activities.

d) Coordinating field development efforts to share development activities among the field offices.

e) Evaluating proposed systems to determine if they have value at other field locations or throughout OSM and assuming responsibility for further systems development.

f) Working closely with IRM Coordinators to ensure compliance with configuration management processes, documentation standards, security issues, etc.

g) Helping to ensure that all personnel receive training on new software packages, upgrades to core software, etc.

2) Assistant Directors are responsible for appointing and supporting IRM Coordinators.

3) IRM Coordinators are responsible for:

a) Attending IRM Coordinator meetings.

b) Coordinating, assisting, and informing user organizations with respect to information resources management.

4. Reporting Requirements

The MIS Division Chief must be informed when IRM Coordinator appointments are made or are changed. The coordinator's name, organization, position title, address, and FTS number should be supplied upon appointment.

5. References

Department of the Interior Departmental Manual, Part 375 DM 2, Information Systems Management—IRM Policy and Program Coordination.

Paperwork Reduction Act (44 USC 3506(c)(8)).

6. Effect on Other Documents

None

7. Effective Date

Upon issuance

8. Contact

MIS Division Chief

C. IRM PLANNING

1. Purpose

This section describes the Information Resources Management (IRM) planning process and provides policy and procedural guidance for planning the acquisition and use of information resources. It identifies the Office of Surface Mining (OSM) organizational elements involved in planning and sets forth their respective responsibilities.

2. Definitions

a. Terms

IRM Strategic Plan. Document identifying the long-term direction to be followed by OSM for cost-effective use of information resources in support of the OSM mission and programs.

b. Abbreviations

ADP	Automated Data Processing
DOI	Department of the Interior
IRM	Information Resources Management
MIS	Management Information Systems Division
OSM	Office of Surface Mining

3. Policy/Procedures

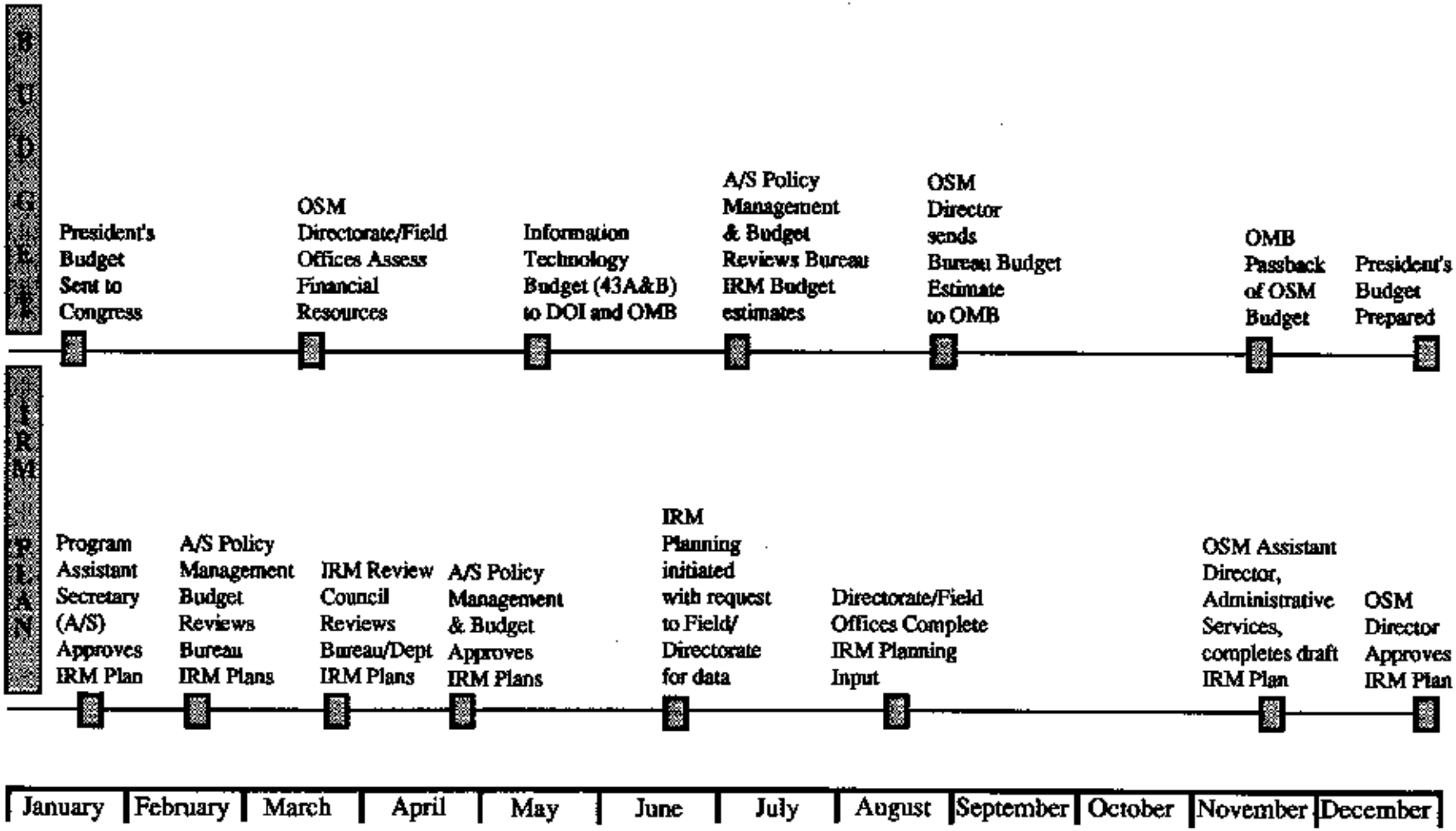
a. Policy

1) The MIS Division Chief will develop, maintain, and annually update an OSM IRM Strategic Plan. This plan will be integrated with mission plans and budget strategies and will serve as the basis for developing or acquiring information resources. The annual plan will be developed in accordance with the schedule established by the DOI Office of Information Resources Management (see Figure II–1).

2) The IRM Strategic Plan will identify the OSM IRM goals for the next 5 years, identify progress against the objectives of the previous annual submission, and identify initiatives and projects with budget requirements and timelines for accomplishing the new or revised strategic IRM objectives.

3) The MIS Division Chief will also develop an annual ADP and Telecommunications Acquisition Plan in accordance with OSM Directive PRC–4, Advance Procurement Planning. The annual ADP and Telecommunications Acquisition Plan will be incorporated into the IRM Strategic Plan. OSM will use the

Figure II–1
INFORMATION RESOURCES MANAGEMENT (IRM) STRATEGIC PLAN AND BUDGET FORMULATION: MAJOR MILESTONES



combined plans as the basis for developing statements of work, specifications, and requisitions for procurement action to acquire information resources.

b. Procedures

1) Field offices and assistant directorates will prepare the following planning input and provide it to the MIS Division Chief by 31 December of each year:

- Description of deficiencies and problems related to IRM.
- Identification and description of opportunities for using information resources to improve productivity.
- A Five-Year ADP and Telecommunications Acquisition Plan
- Plans within the activity to acquire or develop information resources through (at a minimum) the *next* fiscal year. This should cover all plans for information collection, application systems modernization and maintenance, data bases, ADP technology, ADP facilities, telecommunications, office automation, records management, support services, and information dissemination.

  The plans should be consistent with anticipated budgets and should include the following:

  Application/Project Name
  Functional Description
  Anticipated Software Environment
  (for example, operating system required, programming language)
  Anticipated Hardware Requirements
  (for example, CPU required, memory and storage requirements)
  Planned Installation Date
  Estimated Level of Effort/Cost
  - One-Time/Installation Costs:
    - OSM Employee Effort/Cost
    - Contractor Effort/Cost
    - Equipment/Software Cost
    - Other Cost
  - Recurring/Monthly Costs:
    - OSM Employee Effort/Cost
    - Contractor Effort/Cost
    - Equipment/Software Cost
    - Other Cost

  Anticipated Documentation Level
  (see Section III.C, Life-Cycle Management of ADP Information Systems)
  Developer(s)
  OSM Technical Project Officer (Name, Position, FTS Number)
  OSM IRM Project Coordinator (Name, Position, FTS Number)

2) Each year, the MIS Division Chief will revise the OSM IRM Strategic Plan and develop an ADP and Telecommunications Acquisition Plan in accordance with guidance set forth in the Departmental Manual (375 DM 4) and OSM Directive PRC–4. This process will include evaluating the prior year's performance with respect to attainment of goals; reviewing and updating the summary of current problems and deficiencies; and refining short- and long-term objectives and goals based upon OSM-specific information needs, available resources, and industry-wide information management and technology trends. The draft IRM Strategic Plan will be prepared by the ISM Assistant Directorate in accordance with the schedule set forth in 375 DM 4. Upon DOI approval, the OSM IRM Strategic Plan will be available for dissemination throughout OSM.

c. Responsibilities

1) The MIS Division Chief is responsible for:

a) Coordinating the development, maintenance, and updating of the annual OSM IRM Strategic Plan.

b) Providing input as required for the DOI IRM Strategic Plan.

c) Preparing an Advance Procurement Plan, as required.

2) Field Office Directors are responsible for:

a) Obtaining the Assistant Director's approval for the acquisition and use of information resources within the field office.

b) Providing field office input to the IRM strategic planning process in accordance with the procedures set forth in section II.C.3.b above.

3) Assistant Directors are responsible for:

a) Mission-related program planning for programs that may involve ADP technology.

b) Providing assistant directorate input to the IRM strategic planning process in accordance with the procedures set forth in section II.C.3.b above.

4. Reporting Requirements

As described in section II.C.3 above:

1) Field Office Directors and Assistant Directors will provide input to the IRM strategic planning process by 31 December of each year. The input will be provided to the MIS Division Chief.

2) The MIS Division Chief will prepare and maintain an IRM Strategic Plan in accordance with the requirements of 375 DM 4.

5. References

Department of the Interior Departmental Manual, Part 375 DM 4, IRM Program Management—IRM Strategic Planning.

Federal Manager's Financial Integrity Act.

Federal Information Resources Management Regulation Subpart 201–19, Triennial Review of Agency Administration and Operation of Information Resources Management Activities.

Office of Management and Budget, OMB Circular A–130, Management of Federal Information Resources, 24 Dec 1985.

Paperwork Reduction Act (44 USC 3506(c)(8)).

OSM Directive PRC–4, Advance Procurement Planning.

6. Effect on Other Documents

None

7. Effective Date

Upon issuance

8. Contact

MIS Division Chief

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D. IRM ASSESSMENT PROGRAM

1. Purpose

This section describes the Office of Surface Mining (OSM) Information Resources Management (IRM) assessment program, which is required by Federal policies and procedures.

2. Definitions

a. Terms

Internal Controls. The steps taken to provide reasonable assurance that obligations and costs are in compliance with applicable law; funds, property, and other assets are safeguarded against waste, loss, unauthorized use, or misappropriation; and revenues and expenditures applicable to agency operations are properly recorded and accounted for to permit the preparation of accounts and reliable financial and statistical reports and to maintain accountability over the assets.

IRM Review. Agency review of IRM activities to ensure that these are carried out in an efficient, effective, and economical manner. Selective reviews of agency IRM activities are also performed by OMB, together with GSA, at least once every 3 years to assess their adequacy and efficiency.

b. Abbreviations

ADP	Automated Data Processing
DOI	Department of the Interior
GSA	General Services Administration
IRM	Information Resources Management
MIS	Management Information Systems Division
OMB	Office of Management and Budget
OSM	Office of Surface Mining

3. Policy/Procedures

a. Policy

1) OSM will prepare an Annual Review Assessment Plan for conducting periodic reviews of IRM activities such as telecommunications, end-user computing, software management, information management, and electronic filing.

2) OSM will periodically assess IRM activities to ensure their adequacy and efficiency. This assessment will include an evaluation of the ability of systems to meet internal control objectives for the following:[1]

Information Collection
- Information collected is meaningful and useful.
- Information collected is reliable.
- Information is arranged in an orderly fashion.
- Information is maintained on a current basis.

Correspondence Handling
- Correspondence is channeled to the appropriate parties.
- Replies are made promptly, accurately, and responsively.

Records Maintenance
- Records are readily available.
- Records are adequately protected.
- Only necessary records are maintained.

ADP
- Proper authorization of transaction inputs, adequate edit checks, and necessary safeguards of sensitive input forms ensure accurate, proper, complete, and timely entry of information.
- Adequate security measures prevent unauthorized system access or improper changes to or loss of data.
- Appropriate controls can detect unauthorized use of the system.
- Outputs are produced accurately, completely, and on time.

b. Procedures

1) The IRM Reviews will be conducted by the operations staff in accordance with established guidelines on IRM.

2) The internal control objectives will be evaluated during Federal Manager's Financial Integrity Act (FMFIA) reviews.

c. Responsibilities

The MIS Division Chief is responsible for:

1) Establishing and maintaining an internal IRM assessment program.

2) Establishing and providing reporting mechanisms as required by the DOI implementation of the Federal IRM Review Program.

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[1] Source: Executive Office of the President, Office of Management and Budget, Internal Control Guidelines, December 1982.

3) Participating in and providing required information for compliance assessments conducted by the DOI Office of Information Resources Management.

4) Providing plans to the Director of the DOI Office of Information Resources Management for assessments to be conducted during a fiscal year as required by the DOI Office of Information Resources Management as part of the review process mandated by the Paperwork Reduction Act.

5) Responding to and initiating follow-up actions relating to the findings and recommendations included in internal and DOI assessment reports.

4. Reporting Requirements

Annual schedule of assessments is submitted to GSA as part of the Federal IRM Review Program and the triennial IRM review process required by the Paperwork Reduction Act.

5. References

Department of the Interior Departmental Manual, Part 375 DM 5, IRM Program Management—IRM Assessment Program.

General Services Administration, Federal Information Resources Management Regulations (FIRMR) Supplement, Federal IRM Review Handbook, 1985. See also Appendix B, Regulatory References.

Paperwork Reduction Act of 1980 (44 USC 3501 et. seq.)

Office of Management and Budget, OMB Circular A–130, Management of Federal Information Resources, 24 Dec 1985.

Internal Control Guidelines 1982.

6. Effect on Other Documents

None

7. Effective Date

Upon issuance

8. **Contact**

MIS Division Chief

E. ECONOMIC ANALYSIS IN SUPPORT OF IRM DECISIONMAKING

1. Purpose

This section provides guidance for use in conducting economic analyses in support of Office of Surface Mining (OSM) Information Resources Management (IRM) decisions.

2. Definitions

a. Terms

Economic analysis. An assessment of the economic considerations, both costs and benefits, for an ADP project; provides information for rational decisionmaking and establishes a common base for making comparisons of alternative methods for achieving the goal of the project.

b. Abbreviations

ADP	Automated Data Processing
DOI	Department of the Interior
IRM	Information Resources Management
MIS	Management Information Systems Division
OSM	Office of Surface Mining

3. Policy/Procedures

a. Policy

All ADP development projects and procurements for hardware, software, and/or services will be analyzed to ensure that they are economically feasible and justifiable.

b. Procedures

Cost/benefit analyses will be conducted in accordance with Federal, DOI, and OSM guidance (see references and also Appendix A, OSM ADP Documentation Requirements, outline for Cost/Benefit Analysis).

c. Responsibilities

1) The MIS Division Chief is responsible for ensuring that OSM ADP investments are economically feasible and justifiable.

2) Subject to delegation of ADP procurement authority from the MIS Division Chief, Assistant Directors and Field Office Directors are responsible for ensuring that cost/benefit analyses for ADP development/acquisition projects

under their purview are conducted in accordance with applicable guidance (see references and Appendix A).

4. Reporting Requirements

Assistant Directors shall ensure that appropriate cost/benefit analyses are forwarded to the MIS Division Chief along with other documentation supporting the request for approval.

5. References

Department of the Interior Departmental Manual, Part 375 DM 7, IRM Program Management—Economic Analysis in Support of IRM Decision Making.

Department of the Interior, A Project Manager's Guide to Benefit/Cost Analysis of Information Technology Investments, January 1989.

Department of the Navy, Naval Data Automation Command, Publication 15, Economic Analysis Procedures for ADP.

Office of Management and Budget, OMB Circular A–11, Preparation and Submission of Budget Estimates, Section 43.2.

Federal Information Processing Standard Publication 64, Guidelines for Documentation of Computer Programs and Automated Data Systems for the Initiation Phase, August 1979.

6. Effect on Other Documents

None

7. Effective Date

Upon issuance

8. Contact

MIS Division Chief

F. INFORMATION RESOURCES STANDARDS PROGRAM

1. Purpose

This directive describes the development, application, and maintenance of technical standards for Office of Surface Mining (OSM) Information Resources Management (IRM).

2. Definitions

a. Terms

American National Standards Institute (ANSI). The principal organization forming standards in the United States. Formed in 1918, it is a nonprofit, nongovernmental organization.

Federal Information Processing Standards (FIPS). Standards developed under the Federal Government's standardization program and concerned with computer sciences, telecommunications, and information management.

International Standards Organization (ISO). A non-treaty organization founded in 1947 and currently comprised of nearly 90 member nations. Each nation assigns its principal standardization body to the ISO. ANSI represents the United States.

Voluntary standards. Standards that are established generally by private sector bodies and are available for use by any person or organization, private or governmental. They are commonly referred to as "industry standards" or "consensus standards" and do not include standards of professional conduct, institutional codes of ethics, private standards of individual firms, or standards mandated by law.

b. Abbreviations

ADP	Automated Data Processing
DOI	Department of the Interior
IRM	Information Resources Management
MIS	Management Information Systems Division
OSM	Office of Surface Mining

3. Policy/Procedures

a. Policy

If cost-effective and consistent with applicable laws and regulations, standards used in OSM will be based on existing Federal, DOI, and OSM standards—in that order. Where these standards are not cost-effective or are nonexistent, the use of

voluntary (industry) standards is preferred in lieu of developing in-house standards.

b. Procedures

1) OSM organizations will consider Federal, DOI, and OSM standards when evaluating and selecting information resources for use at OSM (see also section III.A, ADP Acquisition). Specific Federal or adopted standards important to improving applications portability are detailed in Figure II–2. Should an organization find that a particular standard is not cost-effective or is inconsistent with applicable laws or regulations, a request to disregard the standard will be submitted to the MIS Division Chief. This request shall include specific references, cost justifications, and other explanations as appropriate.

2) OSM employees with advice regarding proposed standards, the introduction of new standards, revisions to existing standards, or requests for waivers should contact the MIS Division Chief.

3) At least once every 3 years, OSM standards will be reviewed to determine their continued applicability and economic benefit.

c. Responsibilities

1) The MIS Division Chief is responsible for:

a) Implementing and maintaining Federal and DOI IRM standards.

b) Providing advice on proposed standards, the necessity of new standards, needed revisions, and requests for waivers.

c) Developing and implementing an OSM IRM standards program and standards to supplement Federal and DOI standards.

d) Ensuring that OSM IRM standards are reviewed at least once every 3 years.

e) Establishing liaison between DOI and OSM on matters related to the development and implementation of IRM standards.

f) Maintaining an inventory of IRM standards and standards groups in which OSM participates.

2) Assistant Directors are responsible for ensuring that information resources leased or acquired conform with applicable Federal, DOI, and OSM standards.

Figure II–2. APPLICATIONS PORTABILITY PROFILE (APP) COMPONENTS

Function	ADP Element	Standard
Operating System	POSIX	FIPS 151–1
	xl	IEEE P1003.2
Data Base Management	SQL	FIPS 127
	IRDS	X3.138 (Proposed FIPS)
Data Interchange:		
Business Graphics	GKS and CGM	FIPS 120, 128
Product Data	IGES	NBSIR 86–3359
Document Processing	SGML	ISO 8879–1986
	ODA/ODIF	ISO/DIS 8613
Network Services:		
Data Communications	OSI	FIPS 146 (GOSIP)
File Management	NFS	IEEE P1003.X
User Interface	X Window System	X3H3.6 (Proposed FIPS)
Languages		CX3J11 draft X3.159
	COBOL	FIPS 021–2
	FORTRAN	FIPS 069–1
	Ada	FIPS 119
	Pascal	FIPS 109

ACRONYM DEFINITIONS

CGM	Computer Graphics Metafile
FIPS	Federal Information Processing Standard
GKS	Graphics Kernel System
GOSIP	Government Open Systems Interconnection Profile
IEEE	Institute of Electrical and Electronics Engineers
IGES	Initial Graphics Exchange Specification
IRDS	Information Resource Dictionary System
ISO	International Standards Organization
NFS	Network File System
ODA/ODIF	Office Document Architecture/Office Document Interchange Format
OSI	Open Systems Interface
POSIX	Portable Operating System Interface for Computer Environments
SGML	Standard Generalized Markup Language
SQL	Structured Query Language

4. Reporting Requirements

None

5. References

Department of the Interior Departmental Manual, Part 375 DM 12, IRM Program Management—Information Resources Standards Program.

DOI Strategic Framework, July 1988.

Federal Information Processing Standards (FIPS).

American National Standards Institute (ANSI).

Institute of Electrical and Electronics Engineers (IEEE).

International Organization for Standardization (IOS).

Electronic Industries Association (EIA).

National Institute of Standards and Technology (NIST) (develops FIPS).

Federal Telecommunications Standards Committee.

International Telegraphic and Telephone Consultative Committee (CCITT).

6. Effect on Other Documents

None

7. Effective Date

Upon issuance

8. Contact

MIS Division Chief

G. INFORMATION RESOURCES SECURITY PROGRAM

1. Purpose

This section defines policies, assigns responsibilities, and prescribes procedures for management of the Office of Surface Mining (OSM) Information Resources Security Program. The purpose of the program is to protect OSM's information resources against loss, theft, natural disasters such as fire or flood, improper use, unauthorized access or disclosure, alteration, manipulation, violations of confidentiality, physical abuse, or unlawful destruction.

2. Definitions

a. Terms

Information. Any communication or reception of knowledge such as facts, data, or opinions, including numerical, graphic, or narrative forms, whether oral or maintained on paper or in media such as computerized data bases, microform, or magnetic tape.

Information Resources. The personnel, technology (hardware and software), and monetary allowance used to create, collect, store, use, and disseminate information.

Information Resources Security. The management controls and safeguards designed to protect information resources and ensure the continued performance of governmental activities during emergency situations.

Information System. The organized collection, processing, transmission, and dissemination of information in accordance with defined procedures, whether automated or manual.

Information Technology Facility. An area containing the technological resources used to collect, process, store, transmit, disseminate, and/or retrieve information in the form or format needed. Technological resources consist of large, medium, and small data processing systems (including mainframe, mini-, and micro- computers); peripheral and storage units; office automation equipment such as word processors and copiers; telecommunications equipment (for example, switches and networks); and the associated software for these types of equipment.

Information Technology Installation. One or more information technology facilities within close physical proximity which, from a management viewpoint, are logically considered a single entity.

Data. A representation of facts, concepts, or instructions in a formalized manner suitable for communication, interpretation, or processing by human or automated means.

Data Base. A collection of data fundamental to a system or an enterprise.

Data Base Administrator. The individual responsible for managing the design and implementation of data base structures to maximize efficiency and effectiveness with regard to processing time and storage requirements.

Sensitive Information/Data. Information or data that requires protection due to the risk and magnitude of loss or harm that would result from inadvertent or deliberate disclosure, alteration, or destruction. The term includes information or data whose improper use or disclosure could adversely affect the ability of an agency to accomplish its mission; proprietary data; records about individuals that require protection under the Privacy Act; and data not releasable under the Freedom of Information Act.

Sensitive Computer Application. A computer system that processes sensitive data or requires a degree of protection due to the magnitude of loss, risk, or harm that could result from inadvertent or malicious manipulation of the application.

Records. All written, machine-readable, audio-visual, and other documentary materials, regardless of physical form or characteristics, made or received by OSM in pursuance of Federal laws or in connection with the transaction of public business and preserved or appropriate for preservation as evidence of the organization and its functions, policies, decisions, procedures, operations, or other activities, or because of the informational value of the recorded data.

System of Records. As defined by the Privacy Act of 1974: "A group of any records under the control of any agency from which information is retrieved by the name of an individual or by some identifying number, symbol, or other identifying particular assigned to the individual."

Vital Records. Records or information deemed necessary to ensure continuity of essential governmental activities during national emergency conditions. Records essential to the protection of the rights and interests of OSM and of the individuals for whose rights and interests it has responsibility.

System Owners. Individuals responsible for acquisition or development and/or the primary user of microcomputer systems, office automation systems, application systems, data bases, and/or manual information systems.

Risk Analysis. The process used to establish the value of assets, review potential threats to those assets, and determine the cost of reasonable safeguards to protect them from damage or loss.

Continuity of Operations Plan. A plan to ensure support to users of information systems during interruptions, emergencies, and disasters.

b. Abbreviations

ADP	Automated Data Processing
BIRSA	Bureau Information Resources Security Administrator
COOP	Continuity of Operations Plan
DOI	Department of the Interior
GSA	General Services Administration
IIRSO	Installation Information Resources Security Officer
MIS	Management Information Systems Division
OSM	Office of Surface Mining

3. Policy/Procedures

a. Policy

The OSM Information Security Program will ensure that adequate measures are established to provide an appropriate level of protection for the information resources under OSM's authority. The program complies with all Federal policies, procedures, and standards governing information resources security. The provisions of this policy shall:

1) Combine all the requirements and responsibilities for manual and automated information resources security into one policy and establish responsibilities and procedures for the development, administration, and maintenance of an information resources security program for OSM.

2) Apply to all OSM divisions and offices and their employees and to the personnel and facilities of contractors providing information resources support to OSM.

3) Concern information that is not related to national security. (National security issues are subject to more stringent security policies and procedures.)

4) Pertain to, but are not limited to, the following:

   a) Information created, transmitted, stored, processed, or disseminated in any media or form (for example, magnetic tape, microfilm, paper documents).

   b) Information in any form when used as input to or retrieved from an information system.

   c) Information technology facilities used in the collection, processing, storage, communication, and retrieval of information.

   d) Other technical systems, such as supervisory process control systems (except those identified in the Department of Defense Authorization Act of 1982).

e) The processes, procedures, and software involved in any of the above activities.

b. Procedures

Successful implementation of an information resources security program is dependent upon accurately determining potential risks and instituting safeguards to minimize them. Every OSM information system and every information technology facility operated by or on behalf of OSM must be protected. System owners and resource managers are responsible for the protection of information systems and facilities under their control. The following activities will be performed to ensure that all systems are protected.

1) Risk Analysis. Conducting a risk analysis is the first step in establishing a security plan. Risk analyses must be conducted for all information technology facilities, all automated application systems, and all manual application systems covered by the Privacy Act. The extent of the risk analysis performed should be commensurate with the magnitude and use of the resources to be protected. Guidance for performing a risk analysis can be found in the National Bureau of Standards (NBS) Federal Information Processing Standards (FIPS), Publications 31 and 65.

a) Information Technology Facilities and Automated Application Systems. A risk analysis shall be conducted at least every 5 years if one has not been conducted within that timeframe under the following special circumstances: when planning the development of a new system or facility, when significant changes are made to the nature or relative sensitivity of data being processed or to the system or facility, and when environmental factors change in such a manner as to alter the threats presented. For automated systems processing sensitive data (such as information covered by the Privacy Act), a risk analysis should be conducted when the configuration on which the information is operated changes so as to create the potential for either greater or easier access.

b) Manual System of Records. A risk analysis shall be performed when a new system of records is proposed under the Privacy Act or when a proposed change to an existing system significantly alters the character of the system by increasing or changing the number or types of individuals on whom records are maintained; expands the types or categories of information maintained; alters the purposes for which the information is used; or exempts records maintained on individuals from any provision of the Privacy Act.

2) Protection. Specific safeguards should be employed to provide a reasonable way to counteract each threat described in the risk analysis and to detect actual or potential security violations. At a minimum, the following procedures must be considered:

a) Physical Security. Appropriate practices and safeguards must be used to minimize the following threats to those places where information and technological resources are located: theft, unauthorized or illegal access, accidental or intentional damage or destruction, improper use, and improper disclosure of information.

b) Personnel Security. Appropriate Federal and contractor employees shall receive security clearances commensurate with the sensitivity of the information or ADP facilities they manage or use. Supervisors are responsible for determining the sensitivity of positions in their areas. System owners are responsible for ensuring that Federal personnel and contractors managing or using systems in their areas have appropriate sensitivity clearances. The criteria for determining sensitivity levels and the procedures for initiating sensitivity clearances are contained in OSM Directive PER–13, Personnel Security Program. Supervisors are responsible for ensuring that employees who use information and technological resources sign statements acknowledging their responsibility for the security of these resources. These statements shall be retained in the employee's official personnel folder.

c) Technical Security. Appropriate safeguards (such as passwords, encryption, and security software) shall be used to prevent unauthorized access to and use of information, data, and software resident on peripheral devices or storage media or in the process of communication via technological means.

d) Administrative Security. Procedures to ensure that all information resources are properly protected and that information technology resources are used only by authorized personnel and for official use only shall be established and disseminated.

3) Automated Application Safeguards. The following specific procedures must be followed to ensure that appropriate safeguards are incorporated into automated application systems.

a) Determine appropriate security safeguards prior to system development or acquisition.

b) Conduct design reviews and system tests prior to system implementation to ensure that the system satisfies the approved security requirements.

c) Certify before implementation that a new system satisfies applicable policies, regulations, and standards and that its security safeguards are adequate.

d) Evaluate the adequacy of security safeguards for existing sensitive systems at least every 3 years.

4) Continuity of Operations Planning

a) Information Technology Facilities and Automated Application Systems. Facility managers and system owners are responsible for developing a Continuity of Operations Plan for each information technology facility and each automated application system under their control to ensure that interruptions of service of whatever type or duration are kept to a minimum. The COOP shall be evaluated periodically to determine the continued adequacy of the established procedures. The COOP shall be revised when indicated by changes in software, equipment, or other related factors. At a minimum, the COOP shall address the following:[2]

- Procedures for backup storage and recovery of data and software
- Processing capabilities and procedures for transferring operations to an alternate site
- Consistency between application system COOPs and the COOP of the information technology facility where the application is processed
- Annual testing of the COOP at large ADP mainframe installations and other installations that provide essential ADP support.

b) Manual Application Systems. A Continuity of Operations Plan must be developed for each manual application system that contains vital records to ensure its continued protection and to ensure that essential OSM activities continue during periods of national emergency. These plans shall be reviewed annually and periodically tested under emergency conditions to ensure their adequacy.

5) Security Awareness Activities. All OSM employees must be adequately trained to fulfill their security responsibilities. All contractor personnel must be advised of OSM security requirements and regulations. The level of security awareness activities in which employees participate shall depend upon their specific involvement with information resources. Supervisors are responsible for ensuring that employees participate in one or more of the following levels of security awareness activities and that a record of this participation is retained in official personnel folders:

a) Orientation, which includes an understanding of Federal regulations and standards and briefings, guides, and/or films designed to acquaint employees with the nature of risks information resources are subject to and the use of security measures to counteract them.

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[2]Federal Information Processing Standards (FIPS) Publication 31 contains guidance for developing contingency plans.

b) Education, which includes classes and seminars designed to provide managers, owners, users, and custodians of information and information technology resources with a general understanding of how to implement security measures and how to determine if security breaches have occurred.

c) Training, which includes more in-depth and formal classes designed to provide owners and users, especially information technology professionals, with the ability to perform risk analyses, design protection programs, and evaluate the effectiveness of existing security programs.

6) Acquisitions and Procurements. It is essential that appropriate safeguards be determined before procuring information technology resources, not only to ensure the wise expenditure of funds, but also to ensure that resources are protected from the time of installation or implementation. To accomplish this, all contract specifications for the acquisition of hardware, software, software development, equipment maintenance, facility management, and related services shall contain requirements for safeguards that encompass technical, administrative, personnel, and physical security.

7) Other Applicable Regulations. Personnel responsible for information resources security must be knowledgeable of, and all activities must conform with, the DOI Departmental Manual, including the parts listed below.

376 DM, Automated Data Processing
377 DM, Telecommunications
381 DM, Origination of Records and Information
382 DM, Records Operations
383 DM, Policies and Procedures for Implementing the Privacy Act of 1974
384 DM, Records Disposition
385 DM, Office Automation Technology
436 DM, Vital Records
441 DM, Clearances and Suitability Investigation Requirements
442 DM, National Security Information
443 DM, Industrial Security Program
444 DM, Physical Security

8) Security Incidents. Each employee must report to the OSM officials listed below at the time of discovery all suspected, actual, or threatened security incidents involving information resources. The type of incident encountered will determine to whom it should be reported. The responsible OSM official will report the incident promptly to the appropriate management authority and follow up with a written report containing the location, the resources involved, and any corrective actions taken. If warranted, investigative action will be taken by the proper enforcement authority.

a) Incidents involving physical, personnel, and national security complaints and violations shall be reported to the OSM Security Officer. This includes the destruction, physical abuse, or loss of technological resources.

b) Incidents involving records and their unlawful removal, defacing, alteration, or destruction shall be reported to the Records Management Office for subsequent notification of the OSM Director and the National Archives and Records Administration.

c) Incidents involving Privacy Act violations shall be reported to the OSM Privacy Act Officer for coordination of corrective action with the pertinent program/system manager.

d) Incidents involving technology resources resulting in the loss of data, fraud, or compromise or disclosure of sensitive material shall be reported at the time of discovery to the Bureau Information Resources Security Administrator (BIRSA).

c. Responsibilities. All personnel associated with the transmission, handling, and dissemination of information or data share responsibility for its protection.

1) The DOI Office of Information Resources Management is responsible for conducting periodic reviews and evaluations of OSM information resources security programs to ensure compliance with Federal and DOI directives.

2) The Director of the Office of Surface Mining is responsible for promoting an attitude of concern for security among OSM employees. The Director is responsible for establishing and implementing an effective information resources security program that conforms to Federal and DOI regulations.

3) The MIS Division Chief is responsible for:

a) Oversight of OSM's compliance with Federal and DOI policies, guidelines, and regulations pertaining to information resources security.

b) Appointing a BIRSA and alternate to coordinate the management of OSM's information resources security program. Both the BIRSA and alternate must be knowledgeable in information technology and security matters and be department employees unless a waiver is granted by the DOI Information Resources Security Administrator.

4) The Assistant Director for Budget and Administration is responsible for oversight of OSM's compliance with Federal and DOI policies, guidelines, and regulations pertaining to physical, personnel, and information security programs. The OSM Security Officer, Records Management Officer, and Privacy Act Officer have specific responsibilities for performing these functions.

5) All Assistant Directors and Field Office Directors are responsible for appointing an Installation Information Resources Security Officer (IIRSO) and alternate, and for designating resource managers and owners for facilities and systems under their jurisdiction. The IIRSO and alternate must be knowl-

edgeable in information technology and security matters and must be department employees unless a waiver is granted by the DOI Information Resources Security Administrator.

6) The BIRSA is responsible for administration of the information resources security program, coordinating all OSM activities designed to protect information resources, promoting security awareness, and reporting on the effectiveness of these activities to OSM and departmental management. The BIRSA will consult with all OSM officials that have security responsibility (for example, the OSM Security Officer, the Records Management Officer, and system owners) to ensure that information resources are adequately safeguarded throughout OSM. The responsibility assigned to the BIRSA does not supersede or replace security responsibilities previously assigned to any other OSM official.

7) The IIRSO is responsible for coordinating all activities related to the management of an installation's information resources security program and for providing technical assistance to installation management about security requirements.

8) The OSM Security Officer is responsible for implementing departmental policies related to physical, personnel, and information/document security for OSM. This involves conducting periodic reviews of sites to ensure the adequacy of their physical security, safeguarding national security information, investigating security incidents, ensuring appropriate sensitivity classifications for all positions using ADP, and initiating appropriate personnel background investigations. All plans affecting physical security require the approval of the Security Officer. All ADP enforcement issues will be processed through the Security Officer.

9) The Records Management Officer is responsible for ensuring OSM compliance with regulations issued by the National Archives and Records Administration and GSA governing the creation, maintenance, and disposal of records, regardless of their physical form. This responsibility includes automated as well as manual records.

10) The Privacy Act Officer is responsible for developing and implementing programs to manage OSM records covered by the Privacy Act (that is, records that contain information about individuals and which are retrieved by the individual's name or other personal identifier) and for conducting periodic inspections of areas where Privacy Act records are maintained.

11) Supervisors and Managers will ensure that employee performance standards contain appropriate references to their security responsibilities and that employees receive security clearances and ADP access certifications appropriate to respective positions. Supervisors and managers will ensure that

appropriate operational procedures and safeguards are implemented for acquiring, accessing, using, maintaining, or disposing of information and technological resources under their control, and that security policies and procedures are adhered to for those resources they control.

12) System Owners are responsible for implementing safeguards to ensure the protection and proper use of the information resources in their areas. This responsibility includes automated applications, manual applications, and associated hardware and software resources. They are responsible for labeling all information and data with appropriate sensitivity labels, must ensure that adequate security requirements are incorporated into internal or contract specifications before conducting risk analyses, and develop COOPs for systems in their areas.

13) Areas designated as information technology facilities (such as computer centers and word processing centers) require the appointment of a Resource Manager. The Resource Manager is responsible for the overall management of an information technology facility. Responsibilities include ensuring that adequate security exists at the facility in conformance with departmental and system owner requirements. The Resource Manager is responsible for conducting a risk analysis and for developing a COOP for the facility.

14) Each Data Base Administrator is responsible for implementing and controlling access to a data base.

15) Users of information and technological resources are responsible for complying with all security requirements pertaining to the resources they use and are accountable for all activity performed under User IDs and passwords which have been assigned to them for the use of automated systems.

4. Reporting Requirements

a. Each IIRSO will conduct an annual review of the installation's information resources security program to assess its effectiveness and to recertify the adequacy of the installed security safeguards. These reviews may utilize existing reports, such as risk analyses, application system certifications, Privacy Act inspections, records management evaluations, the Departmental Control Evaluation Program, and Inspector General audits. The output of this review should serve as the basis for ensuring the adequacy of the installation's automated information system security.

b. Each IIRSO will prepare an annual installation security report. This report will be incorporated in the BIRSA's annual security plan for transmittal to the DOI Information Resources Security Administrator. The annual reviews described above should serve as the basis for this report.

c. Other requirements as stated herein.

5. References

Department of the Interior Departmental Manual, Part 375 DM 19, IRM Program Management—Information Resources Security Program.

Department of the Interior Departmental Manual, ADP Standards Handbook, Part 306 DM 2).

Office of Management and Budget, Circular No. A–130, Management of Federal Information Resources.

General Services Administration, Federal Information Resources Management Regulations (FIRMR) on security, privacy, ADP management and acquisition, telecommunications management and acquisition, and records management.

National Bureau of Standards Federal Information Processing Standards Publications dealing with security.

Office of Personnel Management, Federal Personnel Manual.

National Archives and Records Administration regulations on records management.

National Security Decision Directive 145.

Department of Treasury Directive 81–80, Electronic Funds and Securities Transfer Policy—Message Authentication.

DOI Information Resources Security Handbook (available from Division of Printing and Publications, Office of Administrative Services, Department of the Interior, Washington, DC 20240).

Computer Security Act of 1987 (Public Law 100–235).

Department of Defense Authorization Act of 1982.

6. Effect on Other Documents

Incorporates ADP–2, Bureau Information Resources Security Program (8 March 1988)

7. Effective Date

Upon issuance

8. Contact

MIS Division Chief or BIRSA

Chapter III

AUTOMATED DATA PROCESSING

AUTOMATED DATA PROCESSING

A. ADP ACQUISITION

1. Purpose

This section contains Office of Surface Mining (OSM) policies and procedures for the acquisition of ADP hardware, software, ADP maintenance services, and ADP support services, including word-processing equipment and electronic mail/message systems.

2. Definitions

a. Terms

Contracting Officer. Individual with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings.

Contracting Officer's Technical Representative. Individual designated by the Contracting Officer as the representative authorized to perform specific administrative functions with respect to the contract.

Technical Project Officer. Individual assigned technical responsibility from the inception of a requirement through its completion. The same individual may serve as both COTR and TPO.

User. Individual (organization) requesting services through an ADP contract. In some instances, the TPO and/or the COTR is the user for a particular requirement.

b. Abbreviations

A&F	Accounting and Finance Assistant Directorate
ADP	Automated Data Processing
COTR	Contracting Officer's Technical Representative
DOI	Department of the Interior
EFO	Eastern Field Operations Assistant Directorate
FAR	Federal Acquisition Regulations
IRM	Information Resources Management
MIS	Management Information Systems Division
OSM	Office of Surface Mining
TPO	Technical Project Officer
WFO	Western Field Operations Assistant Directorate

3. Policy/Procedures

a. Policy

1) Procurement of ADP Equipment and Services — Authority

a) Assistant Directors are granted the authority to approve requisitions to procure equipment and ADP services as set forth in the OSM Directive OPM–1, Delegation of Authority. At present, Assistant Directors may approve purchases up to $10,000, except that new microcomputer purchases must be approved by the MIS Division Chief (see Figure III–2 on page III–6). Equipment must conform with OSM, DOI, and Federal standards. Any procurement exceeding this threshold must be approved by the MIS Division Chief. Requirements shall not be fragmented into individual procurements in order to circumvent acquisition thresholds. ADP requirements should be planned for and identified in the input to the annual IRM Strategic Plan and ADP and Telecommunications Acquisition Plan. These planned purchases also will be within budgetary requirements. Appropriate documentation that justifies selection and purchase of all ADP resources selected shall be developed and maintained by the originator.

b) Before acquisition, an evaluation of various alternatives for satisfying the need should be conducted. This evaluation should include the option of employing existing information resources which may be available outside of the organization (that is, sharing resources).

c) Services to be provided by contractors, as well as those performed by OSM employees, shall comply with life-cycle development standards (see section III.C, Life-Cycle Management of ADP Information Systems).

d) Maintenance for equipment in Headquarters will be provided by the MIS Division Chief. Otherwise, maintenance is the responsibility of each assistant directorate. Maintenance contracts, when deemed economically justifiable, may be made with local vendors. Consideration should be given to using blanket purchase agreements or other OSM or DOI maintenance agreements, when available.

2) ADP Contract Administration

All procedures and activities in the administration of ADP contracts will be consistent with the applicable contracts, Federal Acquisition Regulations (FAR), DOI Acquisition Regulations (DIAR), and Federal Information Resources Management Regulations (FIRMR). All ADP contracts are limited to ADP support and may not be used for non-ADP activities. The MIS Division Chief is responsible for providing management, policy oversight, and direction for all OSM ADP contracts. The Assistant Directors for EFO, WFO, and A&F are responsible for providing administrative and management oversight for ADP

contracts within their respective assistant directorates, including subordinate offices.

The following policies apply to all OSM ADP contracts:

a) All support requested through a contract will be within the organization and scope of work covered by that contract. Assistant directorate support is restricted to the specific assistant directorate and its subordinate offices. The MIS Division Chief will provide contractor support for Headquarters offices; these contracts may also be used to provide nationwide support.

b) ADP support requirements involving or affecting nationwide OSM programs or functions will be provided by the MIS Division Chief, unless otherwise agreed to by the MIS Division Chief. Support will be implemented in EFO, WFO, and A&F through the local assistant directorate's contractor.

c) All communications between contractors will be coordinated through the respective COTRs. Contractors may not communicate with each other without the coordination of designated OSM staff.

d) Support requirements involving applications developed for a specific assistant directorate may be transported and used within that assistant directorate without MIS coordination. Applications will be provided to offices outside of the assistant directorate only through the MIS Division Chief and through the coordination of the COTRs.

e) Support for the Solicitor's office and other departmental organizations will be provided, where necessary, by the MIS Division Chief. As needed, implementation for field office solicitors may be provided through field operations assistant directorate contractors.

f) Support for State regulatory authority programs with nationwide impact, such as the Technical Information Processing System (TIPS), will be provided through EFO and WFO.

g) ADP contracts will not be used to provide continuing data entry or related clerical support. Data entry is limited to support of specific applications and for a specific period of time.

3) Core Microcomputer Software

To facilitate procurement, training, and interoperability, OSM has identified categories of software for which "core" packages have been selected (see Figure III–1). For the software types included in the figure, only core packages may be purchased. OSM will provide applications assistance, training, and other support to those who use these software packages, which were selected after considering OSM-wide and industry-wide usage and standards.

Figure III–1
OSM CORE SOFTWARE FOR MICROCOMPUTERS AND NETWORKS

Software Type	Core Package	Version
Operating System	PC-DOS	3.3
	MS-DOS	3.3
Word Processing	WordPerfect	5.0
Data Base Management	FoxBase	2.0
	dBase III+	1.1
Electronic Spreadsheet	Lotus 1–2–3	2.01/2.2
Telecommunications	Crosstalk XVI	3.61A
	Novell Netware	2.15

4) ADP Coordination and Review

The MIS Division Chief acts as the OSM IRM Coordinator and as such, is responsible for all OSM IRM and ADP activities.

b. Procedures

1) Procurement of ADP Equipment and Services

a) Within Threshold

Assistant Directors may approve acquisitions of ADP resources without prior written approval from the MIS Division Chief when the costs will not exceed the threshold identified in the policy stated above. Appropriate documentation that justifies selection and purchase of all IRM resources selected shall be developed and maintained and shall be submitted to the MIS Division Chief. All requests for procurement of microcomputers, minicomputers, or mainframe processors must be approved by the MIS Division Chief.

b) In Excess of Threshold

All ADP resource acquisitions expected to exceed the OSM threshold must have written approval from the MIS Division Chief before procurement documents are issued. ADP resource acquisition requests shall:

- Be included in input to the IRM Strategic Plan and ADP and Telecommunications Acquisition Plan. The request shall include the information specified in section II.C, IRM Planning.

- Be approved by the MIS Division Chief.

All ADP resource acquisitions expected to exceed DOI thresholds (see Figure III–2) will be handled in accordance with procedures set forth in the DOI Departmental Manual, Part 376 DM 4. The MIS Division Chief is responsible for obtaining DOI approval.

2) ADP Contract Administration

Assistant Directors may contract for ADP service above the authorized threshold only with the approval of the MIS Division Chief.

All ADP contracts will follow the technical and administrative procedures stated in respective statements of work.

Each ADP contract must include the following contract administration elements. Additional assistant directorate-specific administrative requirements should be included when necessary.

Figure III–2
DOI/OSM ADP ACQUISITION THRESHOLD SUMMARY

OSM AD Threshold	$10,000 per total procurement
Departmental Thresholds	
Full and Open Competition	
ADP Hardware — Purchase	$1,000,000 total value
ADP Hardware — Lease (including maintenance costs)	$25,000/month
Proprietary Software	$300,000 total value
Maintenance Service	$1,000,000/annum
ADP Contract Service	$500,000/annum
Other Than Full and Open Competition	
ADP Hardware — Purchase	$100,000 total value
ADP Hardware — Lease (including maintenance costs)	$3,000/month
Proprietary Software	$100,000 total value
Maintenance Service	$100,000/annum
ADP Contract Service	$100,000/annum
8(a) Firm	
ADP Hardware/Software	$100,000/total value
ADP Contractor Service	$500,000/annum
ADP Software/Contractor Services from Other Government Source	$500,000/annum
Hardware Through Reutilization Process	
CPU Cost	$50,000 total value
Lease (including maintenance costs)	$3,000/month

a) Monitoring Contract Performance. The contractor's technical performance is monitored through a technical progress or status report submitted at intervals designated by the specific contract. The Contracting Officer, COTR, and TPO (as applicable) review and evaluate contractor progress during a specific period of performance. This may also include briefings or other reporting as included in specific contracts.

b) Inspection and Acceptance. Inspection is the examination and testing of services to determine whether they conform to contract requirements. Acceptance is the action of an authorized representative of OSM by which the Government approves specific deliverables or services rendered as partial or complete performance of the contractor. The COTR and TPO must inspect and then accept or reject all deliverables submitted by contractors.

c) Invoice Review and Approval. The contractor will submit invoices as required by the specific contract. The COTR is responsible for reviewing and coordinating invoice reviews with TPOs (as applicable) to ensure that all costs the Government pays are appropriate, reasonable for the work performed and comply with contract requirements and schedules.

d) Government Property Held by Contractor. If it becomes necessary to provide the contractor with Government property (software, hardware, or other materials), the COTR, in coordination with the Contracting Officer, must ensure that all contractor-held Government property is properly documented and meets all property management requirements. Before providing Government-furnished equipment or property to a contractor, specific FAR clauses must be added to the contract and the contractor has very specific guidelines that he must follow to properly follow to properly maintain and inventory such property.

e) Contractor Purchase. If it is necessary for the contractor to purchase equipment or other goods, the purchased item(s) becomes the property of the Government. The COTR, in coordination with the Contracting Officer, is responsible for ensuring that all contractual requirements are met and followed.

3) Core Software

The following procedures should be followed when purchasing microcomputer or network software.

a) Obtaining a Copy of Core Software

Request a copy of the software from the MIS Software Inventory Coordinator. If the software is not available from inventory or other OSM or DOI sources, the MIS Software Inventory Coordinator will recommend the most effective and efficient way to satisfy the requestor's requirements.

Activities may *not* use other software as a substitute for core software.

b) Obtaining a Copy of Other Software

Software for which no core software is designated should be purchased through the requesting office's Procurement Agent or Contracting Officer. The requestor will prepare a requisition in accordance with established OSM procurement procedures and authorities. In addition, if the non-core software has a purchase price of $250 or greater, approval of the MIS Division Chief must be obtained prior to purchase.

c) Obtaining an Update to Core Software

Newly released versions of core software must not be purchased for routine use until the MIS Division Chief has approved an OSM-wide upgrade. However, such packages may be purchased for special projects or analysis upon approval of the MIS Division Chief.

d) Requesting Changes to the OSM Core Software

Requests for changes to, additions to, or deletions from the OSM core software list should be sent to the MIS Division Chief. The requesting letter should include an explanation of the requested change and the reasons a change/addition is needed.

c. Responsibilities

1) The MIS Division Chief is responsible for:

a) Ensuring that major systems comply with life-cycle development standards and economic analysis standards.

b) Developing a Five-Year ADP and Telecommunications Acquisition Plan and ensuring that acquisition requests conform with the plan.

c) Ensuring that OSM systems are managed in accordance with the authorities cited in the references listed below.

d) Conducting periodic reviews to ensure the efficiency, effectiveness, and proper implementation of contract management controls.

e) Coordinating OSM ADP contracting policy and procedures with the Branch of Contracting.

f) Administering and overseeing all ADP delegations of authority from DOI to OSM.

g) Providing liaison with and accountability to the DOI Office of Information Resources Management for ADP procurement activities.

h) Oversight of all ADP contracts supporting information resources.

i) Delegating administrative authority to Assistant Directors for ADP contracts supporting the information resources of the particular assistant directorate.

j) Conducting reviews of assistant directorate ADP contractor efforts to evaluate compliance with DOI and OSM ADP policies and procedures.

k) Approving all requests for contractor support.

l) Providing ADP contractor support for the Office of the Solicitor and other departmental organizations.

m) Providing ADP contractor support to OSM field offices and State regulatory authority programs where there is nationwide impact.

n) Providing lead coordination for efforts requiring MIS and/or assistant directorate contractors to work with each other.

2) For the ADP contracts for which they are accountable, Assistant Directors are responsible for:

a) Ensuring that any system development project is approved by the MIS Division Chief.

b) Ensuring that projects conform to OSM standards and follow the OSM and DOI life-cycle development requirements, and maintaining and forwarding to the MIS Division Chief for review and approval all required life-cycle documentation, especially documentation relating to ADP acquisition and project approval decisions.

c) Conducting site/security readiness reviews before system installation.

d) Administering ADP delegations of authority from the MIS Division Chief.

e) Ensuring compliance with all OSM, DOI, and Federal policies and procedures, including ensuring that the systems are managed in compliance with authorities listed in the references below.

f) Establishing and administering supplemental assistant directorate contracting policy and procedures.

g) Administering and overseeing approved assistant directorate contracts supporting information resources.

h) Ensuring that all ADP contract support represents the best interests of the Government.

i) Approving all requests for contractor support within the respective assistant directorate.

j) Implementing support of nationwide efforts through assistant directorate contracts as requested by the MIS Division Chief.

k) Ensuring that assistant directorate coordination is provided for efforts involving contractors in other assistant directorates.

l) Approving all requests for the expenditure of assistant directorate ADP contract funds.

3) The Contracting Officer, and only the Contracting Officer, is authorized to:

a) Award, agree to, or execute any contract, contract modification, or notice of intent.

b) Execute or agree to any changes in the specifications, delivery schedule, or other terms and conditions of the contract.

c) Order work inside or outside the scope of the contract.

4) The COTR is responsible for:

a) Ensuring that all users and TPOs adhere to the contractual requirements for requesting support from the contractor.

b) Assisting the contractor in interpreting technical requirements of the contract's scope of work.

c) Coordinating written technical directions, specifications, and procedures relating to contractual work requirements with the contractor.

d) Issuing technical direction in accordance with the contract's technical direction contract clause.

e) Coordinating with the MIS COTR and other assistant directorate COTRs, as needed.

f) Reviewing and commenting on the contractor's request for Government-furnished facilities, supplies, materials, and equipment and forwarding the request to the Contracting Officer for disposition.

g) Reviewing and commenting on the contractor's request for consent to purchase supplies, materials, and equipment and forwarding the request to the Contracting Officer for disposition.

h) Maintaining a complete and open line of communication with the Contracting Officer regarding the contractor's technical performance and progress and, when requested, providing written assessment of the contractor's performance for inclusion in the contractor performance file.

i) Ensuring that Government inspection and acceptance for all deliverable items under the contract is accomplished.

j) Reviewing payment vouchers and concurring with respect to the percent of technical completion for items or services delivered and accepted under the contract.

k) Upon expiration of the contract, providing a written statement attesting to the contractor's completion of technical performance under the contract and of the delivery and acceptance of all goods and services for which inspection and acceptance are designated.

5) The TPO is responsible for:

a) Providing the contractor with written technical requirements in coordination with the contracting officer and user.

b) Ensuring that written requirements are submitted to the COTR (where applicable) for issuance to the contractor.

c) Scheduling and organizing meetings with the user and contractor to initiate work.

d) Ensuring that copies of written requests are submitted to the COTR (as applicable) and included in COTR files.

e) Reviewing and recommending COTR approval/disapproval (as applicable) of contractor proposals, management plans, and resumes.

f) Identifying and resolving all technical discrepancies and issues.

g) Ensuring that all dates and deadlines are monitored effectively.

h) Communicating effectively with the user and the contractor.

i) Anticipating and resolving problems as expeditiously as possible.

j) Reviewing, evaluating, and recommending acceptance of deliverables.

k) Ensuring that all documents requiring the user's review and signature are forwarded to the user.

l) Documenting all user and technical comments on contractor performance, deliverables, and the status of work.

m) Communicating with and keeping the COTR informed (as applicable) of contractor performance, the status of deliverables, and other matters involving the terms and conditions of respective contracts.

6) The user is responsible for:

a) Identifying and submitting needs and requirements to the TPO or COTR.

b) Working with the TPO or COTR to develop written requirements.

c) Reviewing and evaluating deliverables and providing comments to the TPO or COTR and recommending acceptance or nonacceptance of deliverables.

d) Monitoring management plan dates and deadlines with the TPO or COTR.

e) Communicating with the TPO or COTR on contractor performance.

f) Ensuring that documents requiring the user's signature are signed promptly and forwarded to the TPO or COTR.

7) The MIS Software Inventory Coordinator is responsible for:

a) Maintaining the OSM core software list.

b) Coordinating acquisition of core software throughout OSM.

c) Keeping abreast of high-level OSM requirements and technological changes to ensure that the core software continues to support OSM needs.

4. Reporting Requirements

As required by the references below and other chapters of this OSM IRM Policy and Procedures Manual.

5. References

OSM Directive OPM–1, Delegations of Authority

Department of the Interior Departmental Manual, Part 376 DM 4, Information Resources Management—ADP Acquisition.

Office of Management and Budget, OMB Circular A–130, Management of Federal Information Resources, 24 Dec 1985.

Paperwork Reduction Act (44 USC 3506(c)(8)).

Federal Information Resources Management Regulations (FIRMR), including:
FIRMR 201–33.003 (Reuse of ADPE)
FIRMR 201–31 (Sharing ADP resources)
FIRMR 201–32.104 (Computer security)
FIRMR 201–23.103 (Thresholds)
FIRMR 201–6 (Required contractual clauses for contracted operations)
FIRMR 201–30.007 (Requirements analysis)
FIRMR 201–30.009 (Analysis of alternatives)
FIRMR 201–30.007(d)(9) and 201–34.002
(Performance evaluation for current ADP system)
FIRMR 201–30.009–3
(Findings to support the use of compatibility-limited requirements)
FIRMR 201–30.012–1 (Software conversion study)
FIRMR 201–11.002(b) (Certified data to support sole source)
FIRMR 201–11.002–1 (Certified data to support sole make/model)
FIRMR 201–30.012 (Planned actions to foster competition)

Federal Acquisition Regulations (FAR), including:
FAR 2.1
FAR 24.104 (Required contractual clauses for contracted operations)

Federal Information Processing Standards (FIPS).

Interior Property Management Regulations (IPMR).

Department of the Interior Acquisition Regulations (DIAR), including:
DIAR 1424.104 (Required contractual clauses for contracted operations).

Privacy Act of 1974, as amended (5 USC 522a).

6. Effect on Other Documents

Supersedes OSM Directive ADP–4

7. Effective Date

Upon issuance

8. Contact

MIS Division Chief

B. ADP COST ACCOUNTING, COST RECOVERY, AND SHARING

1. Purpose

This section establishes Office of Surface Mining (OSM) policies and procedures for sharing ADP equipment. As OSM does not provide reimbursable ADP services to external organizations, no policies have been established for the cost accounting and cost recovery required when dealing with chargeback systems.

2. Definitions

a. Terms

None

b. Abbreviations

ADP	Automated Data Processing
MIS	Management Information Systems Division
OSM	Office of Surface Mining

3. Policy/Procedures

a. Policy

OSM will share information technology facilities with users from other agencies to the maximum extent feasible.

In selecting information technology facilities to support new applications, OSM will ensure that:

- In the interest of efficiency and economy, alternative facilities are considered, including other Federal agencies and non-Federal facilities and services.
- Policy does not require that priority be given to the use of in-house facilities.
- Selection decisions are documented in official records.

b. Procedures

When evaluating information resource requirements for new applications (or modifications to existing systems), consider the cost and availability of facilities and services of other Federal agencies and non-Federal organizations.

c. Responsibilities

1) The MIS Division Chief is responsible for promoting OSM-wide ADP resource sharing and for ensuring that alternative sharing of ADP resources is evaluated before new procurements are made.

2) Assistant Directors are responsible for promoting ADP resource sharing within the assistant directorate and for ensuring that alternative sharing of ADP resources is evaluated before new procurements are made.

4. Reporting Requirements

None

5. References

Department of the Interior Departmental Manual, Part 376 DM 6, ADP—ADP Cost Accounting, Cost Recovery, and Sharing.

Office of Management and Budget, OMB Circular A–130, Management of Federal Information Resources, 24 Dec 1985.

6. Effect on Other Documents

None

7. Effective Date

Upon issuance

8. Contact

MIS Division Chief

C. LIFE-CYCLE MANAGEMENT OF ADP INFORMATION SYSTEMS

1. Purpose

This section provides Office of Surface Mining (OSM) policy and procedural guidance to ensure that system development and implementation is efficient and effective. It does not dictate a specific development methodology to be used. Instead, it concentrates on documentation requirements over the life cycle to:

- Ensure that all OSM ADP systems and applications are consistently documented in clear, high-quality documents throughout their life cycles.
- Ensure that the proper level of documentation is developed for a proposed ADP system or application.

Appendix A clearly states format and content for the most common documents required during the life cycle of a proposed or operating ADP system or application used or planned for use within OSM.

2. Definitions

a. Terms

Life-Cycle Management (LCM). A management approach that provides a structured process for planning and controlling an information resource from inception to replacement or termination. LCM provides a common framework that facilitates control of the process, specifies the contents of deliverables, improves communications among diverse interest groups, and manages the development and acquisition of information resources. The effort and level of detail of the activities conducted by using the LCM management approach are to be commensurate with the size, complexity, and importance of the resource.

Documentation.[1] All information that describes the development, operation, use, and maintenance of computer software. This information is in a form that can be reproduced, distributed, updated, and referred to when it is needed.

b. Abbreviations

ADP	Automated Data Processing
DOI	Department of the Interior
IRM	Information Resources Management
MIS	Management Information Systems Division
OSM	Office of Surface Mining
TPO	Technical Project Officer

[1] Source: Federal Information Processing Standards, Publication 105, 6 June 1984.

3. Policy/Procedure

a. Policy

In general, software documentation fulfills the following important functions throughout the life cycle of a system or application:

- Assistance in defining mission needs and requirements.
- Communication to keep management apprised of requirements, progress, problems, and expectations while the system or application is under development.
- Communication to keep those who are performing various development, operation, and maintenance tasks aware of what other groups are doing or have done while the system or application is under development.
- Instruction and reference for those using the system or application.
- Information for maintenance, quality assurance, and auditing personnel.
- Historical reference for future development efforts and to assist in transferring the system or application to new environments.

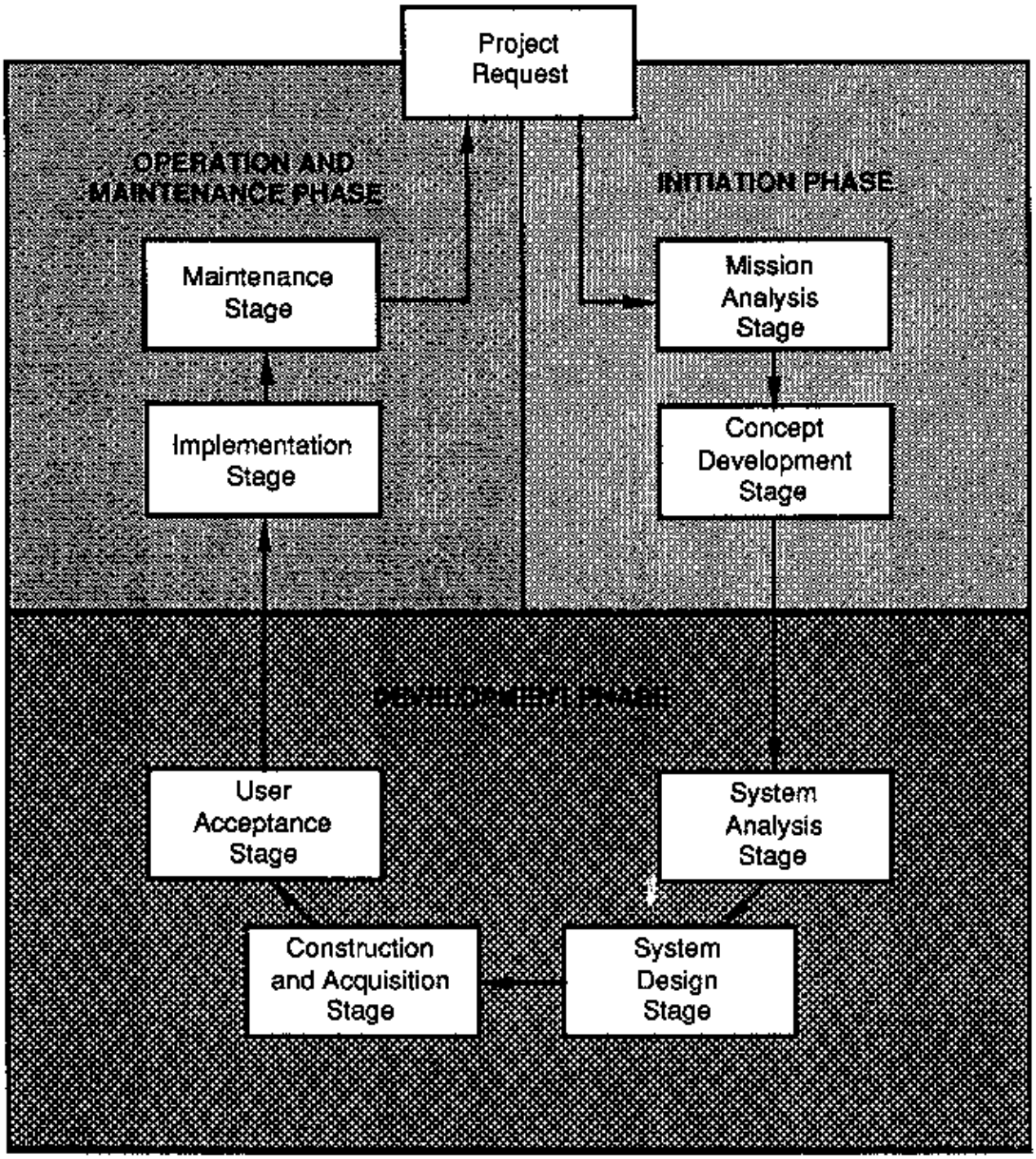
A system's life cycle consists of well-defined activities that begin when a need is identified and continue until the resulting system or application is no longer of use. Figure III–3 shows the three phases and nine stages of this life cycle as defined by DOI. The three phases of the application system life cycle are initiation, development, and operation and maintenance. These phases are divided into eight stages, and the documentation required over the life cycle falls into those stages.

Initiation Phase. The documentation prepared during the initiation phase organizes and justifies the subsequent development effort. Mission analysis stage documentation concentrates on the general need for a system and preliminary organizational activities. Concept development stage documentation:

- Identifies alternatives and the costs and benefits of those alternatives.
- Delineates responsibilities for the production team.
- Defines schedules and milestones for the development project.
- Records the history of the development effort so that the rationale for the system's structure is available for later use.

Development Phase. Documentation prepared during the system analysis and system design stages of the development phase records details of discussions about system requirements.

Figure III-3
DEPATMENT OF THE INTERIOR SYSTEM LIFE CYCLE



Documentation prepared during the system construction and acquisition and user acceptance stages of the development phase describes the results of the analysis and design effort. It provides the information needed for effective system design and testing as well as the use, operation, maintenance, and conversion and/or transfer of the resulting system or application. If the product is to be used by people other than the developers, this documentation will prevent any number of problems that may cause the product to fail. For example:

- System developers and programmers use information that describes what a system or application is supposed to do, when it should do it, and how it should be tested.

- System administrators, operators, and maintenance programmers use information that tells how to operate, support, and maintain the system or application.

- Users employ training and reference materials that enable them to quickly learn how to use the system or application and find answers to specific questions.

- Management uses information in the documentation to inform other managers and potential system users about the system's existence and capabilities.

All ADP development projects, whether the development of a new system or the modernization or modification of an existing system, involve all phases of the life cycle: initiation, development, and operation and maintenance. The development or enhancement process will follow a systematic, structured approach that will be documented as set forth herein. The specific development methodology used may vary from project to project. When cost effective, state-of-the-art development approaches such as prototyping, computer-assisted software engineering (CASE), and reverse engineering (prototyped systems) for mandatory documentation should be used; however, the fundamental considerations will not change. These considerations are established in the procedures described below.

The degree of documentation required is determined by comparing the scope of the ADP development project to the five levels of documentation as described in the procedures below. This decision should be made in the early planning stages and should be reported in field office and assistant directorate input to the IRM Strategic Plan.

To reiterate, all ADP development efforts involve all stages of the system life cycle, even if formal documentation is not required. For example, even a system developed by one individual for his or her own use will involve the following system life-cycle activities:

- Determining a need, conceptualizing the system, and determining if benefits outweigh the costs of development (project initiation).

- Analyzing specific functional and data requirements (system analysis).

- Designing the software and data base (system design).

- Coding the programs, establishing the data base structure, converting or keying the data, testing the system, and determining acceptance (system construction and acquisition, user acceptance).

- Using and maintaining the system (operation and maintenance).

Adhering to a structured approach of development and maintenance reduces the potential for overlooked requirements and inefficient or ineffective designs. The larger and more complex the system, the more expensive changes become in the later stages of the life cycle. For this reason, more stringent documentation requirements are established and must be followed for these systems.

b. Procedure

As the scope of projects varies, so do the requirements for documentation. The following paragraphs define five levels of documentation and provide guidance on how to choose the appropriate level for an ADP development effort.

Level 0 — No documentation is required for microcomputer programs developed by an OSM staff member for individual use. However, if the programs are found to be useful to other individuals within the office—or would be used by a successor in the position—Level 1 documentation is required at a minimum.

Level 1 — Required for systems used within a single office (that is, one Headquarters division or one field office division).

Level 2 — Required for systems used throughout one OSM location (that is, in all Headquarters divisions or in all divisions of a field office).

Level 3 — Required for systems used by more than one OSM organizational level or more than one field office (for example, systems that communicate information from a field office to a Headquarters office or among field offices).

Level 4 — The maximum level of documentation will be prepared for major, service-wide systems that require oversight by the DOI Office of Information Resources Management.

c. Responsibilities

1) The MIS Division Chief is responsible for:

a) Maintaining up-to-date documentation standards and policies and communicating those standards and policies to the responsible organizational units.

b) Ensuring that MIS TPOs follow the appropriate policy and procedures in developing plans for application life-cycle documentation requirements.

2) Assistant Directors are responsible for:

a) Maintaining up-to-date documentation standards in their files.

b) Ensuring that TPOs on their staffs follow the policies and procedures with regard to preparing documentation plans for application systems developed by their offices.

3) TPOs are responsible for:

a) Managing projects in accordance with DOI and OSM guidance to ensure efficient development and implementation of an effective system.

b) Preparing project management plans for ADP development and maintenance projects. Documentation plans, which will indicate the level of and schedule for planned documentation, will be included therein. These plans will be included in each system proposal.

4) Documentation Specialists (contractors and OSM) are responsible for following the detailed requirements for content and format found either in Appendix A to this directive or in the DOI Project Manager's Guide to Application Systems Life-Cycle Management (see references), as determined by the level of documentation required.

4. Reporting Requirements

At the onset of any ADP development effort, OSM project officers are responsible for using this guide to prepare a list of required documentation. All phases of the system life cycle (initiation, development, and operation and maintenance) should be considered when preparing this list. The decision as to the documentation required should be made early in system planning efforts and should be reported in field office and assistant directorate input to the IRM Strategic Plan.

Figure III–4 is a matrix that shows documentation requirements for all phases and stages of the four levels of required documentation as defined in the policy above. Figures III–5 through III–8 provide detailed listings for each documentation level and each life-cycle phase and stage. Content summaries and annotated outlines for documentation required in phases 1 through 3 can be found in Appendix A to this directive. Details on phase 4 documentation can be found in the DOI Project Manager's Guide to Application Systems Life-Cycle Management (see references).

The requirements discussed in this section should serve as a general guide to determining the extent of documentation required, and they are intended to be flexible. Developers may feel that more documentation is required, less documentation is

required, or that some documents can be combined. Factors such as the size of the application system, the development methodology used, the projected number of users, and the size of the development team will influence the documentation desired. For example, while all systems require analysis and design before they are implemented, the level of detail and formality of development documentation will vary according to factors such as those listed above.

While the policy for documentation to be prepared is flexible, the detailed requirements for content and format found in Appendix A and in the DOI Project Manager's Guide to Life-Cycle Management must be followed where they apply.

Copies of documentation for systems which may have applicability throughout OSM should be forwarded to the MIS Division Chief for review and consideration for further promulgation. Requirements and final products should also be discussed at the semi-annual IRM Coordinator meetings.

Figure III–4
COMPARISON OF MINIMUM DOCUMENTATION REQUIREMENTS

Life-Cycle Phase/Stage/Document		Level 4	Level 3	Level 2	Level 1
1	**INITIATION PHASE**				
1.1	**Mission Analysis Stage**				
1.1.1	Project Request	Required			
1.1.2	Mission Analysis Methodology	Required			
1.1.3	Cost/Benefit Analysis	Required			
1.1.4	Project Charter	Required			
1.1.5	Organizational Model	Required			
1.1.6	Mission Processes Model	Required			
1.1.7	Information Model	Required			
1.1.8	Mission Need Statement	Required			
1.2	**Concept Development Stage**				
1.2.1	System Objectives	Optional			
1.2.2	Application System Architecture	Optional			
1.2.3	Data Architecture	Optional			
1.2.4	Data Communications Architecture	Optional			
1.2.5	Feasibility Study		Required	Required	
1.2.6	System Life-Cycle Strategy	Required			
1.2.7	System Life-Cycle Dates	Required			
1.2.8	System Life-Cycle Resources Estimate	Required			
1.2.9	Project Management Plan		Required	Required	
1.2.10	Quality Assurance Plan		Required	Required[1]	
1.2.11	Cost/Benefit Analysis	Required	Required	Required	
1.2.12	Revised Mission Need Statement	Required			
1.2.13	System Decision Paper 1	Required			

[1]Incorporated in Project Management Plan.

Figure III–4 (Continued)
COMPARISON OF MINIMUM DOCUMENTATION REQUIREMENTS

Life-Cycle Phase/Stage/Document		Level 4	Level 3	Level 2	Level 1
2	**DEVELOPMENT PHASE**				
2.1	**System Analysis Stage**				
2.1.1	Current System Description	Optional	Required[2]	Required[2]	Optional[2]
2.1.2	Detailed Functional Requirements	Optional	Required	Required	Optional
2.1.3	Data Requirements	Required	Required	Required	Optional
2.2	**System Design Stage**				
2.2.1	Design Proposal	Required			
2.2.2	Detailed Cost/Benefit Analysis	Required			
2.2.3	Revised Life-Cycle Strategy	Required			
2.2.4	System Decision Paper 2	Required			
2.3	**System Construction and Acquisition Stage**				
2.3.1	Test Plans:				
2.3.1.1	Unit Test Plan		Required		
2.3.1.2	Integration Test Plan		Required		
2.3.1.3	System Test Plan	Required	Required		
2.3.1.4	Acceptance Test Plan		Required		
2.3.2	ADPE Specifications	Optional	Required[3]		
2.3.3	Application Software Documentation:				
2.3.3.1	System/Subsystem Specification	Optional	Required		
2.3.3.2	Data Base Specification	Optional	Required	Required	Optional
2.3.3.3	Detailed Process Design	Optional			
2.3.3.4	Program Specification	Optional	Required		
2.3.3.5	Test Data Design	Optional			
2.3.3.6	Data Dictionary	Optional	Required	Required	Optional
2.3.4	Control, Backup, and Security Study	Required	Required[4]	Required[4]	Required[4]
2.3.5	Contingency Plan		Required	Required	

[2]Incorporated in Detailed Functional Requirements.
[3]Incorporated in System/Subsystem Specification.
[4]Incorporated in User's Manual, Operations Manual, and Data Base Administration Procedures Manual.

Figure III–4 (Continued)
COMPARISON OF MINIMUM DOCUMENTATION REQUIREMENTS

Life-Cycle Phase/Stage/Document		Level 4	Level 3	Level 2	Level 1
2.4	**User Acceptance Stage**				
2.4.1	Current System Description	Required			
2.4.2	Mission Analysis Methodology	Required	Required[5]		
2.4.3	Cost/Benefit Analysis	Optional	Required		
2.4.4	User Training Plan	Optional	Required	Required	
2.4.5	Post-Implementation Review Plan	Required			
2.4.6	Program Maintenance Manual	Required	Required	Required	Optional
2.4.7	Data Processing Manual	Optional			
2.4.8	User's Manual	Optional	Required	Required	Required
2.4.9	Operations Manual	Optional	Required	Required	Required
2.4.10	Data Base Administration Procedures Manual		Required	Required	Required
2.4.11	System Decision Paper 3	Required			
3	**OPERATION AND MAINTENANCE PHASE**				
3.1	**Implementation Stage**				
3.1.1	Application Stewardship Document	Required			
3.2	**Maintenance Stage**				
3.2.1	Post-Implementation Review Report	Required			
3.2.2	System Decision Paper 4	Required			

[5]Incorporated in Conversion Plan.

Figure III–5
SUMMARY OF MINIMUM DOCUMENTATION REQUIREMENTS AND REFERENCE NUMBERS FOR OSM LEVEL 1

INITIATION PHASE

Mission Analysis Stage	None Required	
Concept Development Stage	None Required	

DEVELOPMENT PHASE

System Analysis Stage	Current System Description[1]	2.1.1
	Detailed Functional Requirements*	2.1.2
	Data Requirements*	2.1.3
System Design Stage	None Required	
System Construction and	Data Base Specification*	2.3.3.2
	Data Dictionary*	2.3.3.6
	Control, Backup, and Security Plan[2]	2.3.4
User Acceptance Stage	Program Maintenance Manual*	2.4.6
	User's Manual	2.4.8
	Operations Manual	2.4.9
	Data Base Administration Procedures Manual	2.4.10

OPERATION AND MAINTENANCE PHASE

Implementation Stage	None Required	
Maintenance Stage	None Required	

*Optional

[1]Incorporated in Detailed Functional Requirements.

[2]Incorporated in User's Manual, Operations Manual, and Data Base Administration Procedures Manual.

Figure III–6
SUMMARY OF MINIMUM DOCUMENTATION REQUIREMENTS AND REFERENCE NUMBERS FOR OSM LEVEL 2

INITIATION PHASE

Mission Analysis Stage	None Required	
Concept Development Stage	Feasibility Study	1.2.5
	Project Management Plan	1.2.9
	Quality Assurance Plan[1]	1.2.10
	Cost/Benefit Analysis	1.2.11

DEVELOPMENT PHASE

System Analysis Stage	Current System Description[2]	2.1.1
	Detailed Functional Requirements	2.1.2
	Data Requirements	2.1.3
System Design Stage	None Required	
System Construction and	Data Base Specification	2.3.3.2
	Data Dictionary	2.3.3.6
	Control, Backup, and Security Plan[3]	2.3.4
	Contingency Plan	2.3.5
User Acceptance Stage	User Training Plan	2.4.4
	Program Maintenance Manual	2.4.6
	User's Manual	2.4.8
	Operations Manual	2.4.9
	Data Base Administration Procedures Manual	2.4.10

OPERATION AND MAINTENANCE PHASE

Implementation Stage	None Required
Maintenance Stage	None Required

[1]Incorporated in Project Management Plan.

[2]Incorporated in Detailed Functional Requirements.

[3]Incorporated in User's Manual, Operations Manual, and Data Base Administration Procedures Manual.

Figure III–7
SUMMARY OF MINIMUM DOCUMENTATION REQUIREMENTS AND REFERENCE NUMBERS FOR OSM LEVEL 3

INITIATION PHASE

Mission Analysis Stage	None Required	
Concept Development Stage	Feasibility Study	1.2.5
	Project Management Plan	1.2.9
	Quality Assurance Plan	1.2.10
	Cost/Benefit Analysis	1.2.11

DEVELOPMENT PHASE

System Analysis Stage	Current System Description[1]	2.1.1
	Detailed Functional Requirements	2.1.2
	Data Requirements	2.1.3
System Design Stage	None Required	
System Construction and Acquisition Stage	Unit Test Plan	2.3.1.1
	Integration Test Plan	2.3.1.2
	System Test Plan	2.3.1.3
	Acceptance Test Plan	2.3.1.4
	ADPE Specification[2]	2.3.2
	System/Subsystem Specification*	2.3.3.1
	Data Base Specification	2.3.3.2
	Program Specification	2.3.3.4
	Data Dictionary	2.3.3.6
	Control, Backup, and Security Plan[3]	2.3.4
	Contingency Plan	2.3.5
User Acceptance Stage	Implementation Plan[4]	2.4.2
	Conversion Plan	2.4.3
	User Training Plan	2.4.4
	Program Maintenance Manual	2.4.6
	User's Manual	2.4.8
	Operations Manual	2.4.9
	Data Base Administration Procedures Manual	2.4.10

[1]Incorporated in Detailed Functional Requirements.

[2]Incorporated in System/Subsystem Specification.

[3]Incorporated in User's Manual, Operations Manual, and Data Base Administration Procedures Manual.

[4]Incorporated in Conversion Plan.

Figure III-7 (Continued)
SUMMARY OF MINIMUM DOCUMENTATION REQUIREMENTS AND REFERENCE NUMBERS FOR OSM LEVEL 3

OPERATION AND MAINTENANCE PHASE

Implementation Stage	None Required
Maintenance Stage	None Required

Figure III–8
SUMMARY OF MINIMUM DOCUMENTATION REQUIREMENTS AND REFERENCE NUMBERS FOR OSM LEVEL 4

INITIATION PHASE

Mission Analysis Stage	Project Request	1.1.1
	Mission Analysis Methodology	1.1.2
	Cost/Benefit Analysis	1.1.3
	Project Charter	1.1.4
	Organizational Model	1.1.5
	Mission Process Model	1.1.6
	Information Model	1.1.7
	Mission Need Statement	1.1.8
Concept Development Stage	System Objectives*	1.2.1
	Application System Architecture*	1.2.2
	Data Architecture*	1.2.3
	Data Communications Architecture*	1.2.4
	System Life-Cycle Strategy	1.2.6
	System Life-Cycle Dates	1.2.7
	System Life-Cycle Resources Estimate	1.2.8
	Cost/Benefit Analysis	1.2.11
	Revised Mission Need Statement	1.2.12
	System Decision Paper 1	1.2.13

DEVELOPMENT PHASE

System Analysis Stage	Current System Description*	2.1.1
	Detailed Functional Requirements*	2.1.2
	Data Requirements	2.1.3
System Design Stage	Design Proposal	2.2.1
	Detailed Cost/Benefit Analysis	2.2.2
	Revised Life-Cycle Strategy	2.2.3
	System Decision Paper 2	2.2.4
System Construction and Acquisition Stage	System Test Plan	2.3.1.3
	ADPE Specifications*	2.3.2
	System/Subsystem Specification*	2.3.3.1
	Data Base Specification*	2.3.3.2
	Detailed Process Design*	2.3.3.3
	Program Specification*	2.3.3.4
	Test Data Design*	2.3.3.5
	Data Dictionary*	2.3.3.6
	Control, Backup, and Security Plan	2.3.4

*Optional

Figure III-8 (Continued)
MINIMUM DOCUMENTATION REQUIREMENTS FOR OSM LEVEL 4

User Acceptance Stage	System Acceptance Report	2.4.1
	Implementation Plan	2.4.2
	Conversion Plan*	2.4.3
	User Training Plan*	2.4.4
	Post-Implementation Review Plan	2.4.5
	Program Maintenance Manual	2.4.6
	Data Processing Manual*	2.4.7
	User's Manual*	2.4.8
	Operations Manual*	2.4.9
	System Decision Paper 3	2.4.11

OPERATION AND MAINTENANCE PHASE

Implementation Stage	Application Stewardship Document	3.1.1
Maintenance Stage	Post-Implementation Review Report	3.2.1
	System Decision Paper 4	3.2.2

5. References

U.S. Department of the Interior, A Project Manager's Guide to Application Systems Life-Cycle Management (376 DM 10), August 1985.

U.S. Department of the Interior, A Project Manager's Guide to Benefit/Cost Analysis of Information Technology Investments, January 1989.

Guidelines for Software Documentation Management, 6 June 1984, Federal Information Processing Standards Publication 105, National Bureau of Standards.

Guidelines for Documentation of Computer Programs and Automated Data Systems, 30 June 1974, Federal Information Processing Standard Publication 38, National Bureau of Standards.

Guidelines for Documentation of Computer Programs and Automated Data Systems for the Initiation Phase, 1 August 1979, Federal Information Processing Standard Publication 64, National Bureau of Standards.

6. Effect on Other Documents

This documentation standard supersedes OSM Directive ADP–3, Systems Implementation Standards.

7. Effective Date

Upon issuance

8. Contact

MIS Division Chief

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b. Procedures

1) When commercial ADP equipment or software is purchased, the hardware/ software package inventory will be updated. The inventory will be maintained by each field office and assistant directorate and will include, at a minimum:

Item Purchased (including Version or Release Number)
Description of Item Purchased
Type of Purchase (indicate one of the following: Computer, Add-in Board, Peripheral, Software, Accessory, Other)
Manufacturer
Vendor
Serial Number
Purchase Order Number
Purchase Date
Receipt Date
Quantity
Price
Person(s) who approved purchase
Distribution Information:
To whom equipment/software is assigned (including Name, Title, Telephone Number)
Location of equipment/software

The hardware and software inventory will be supplied to the MIS Division Chief.

2) Each organization will maintain an inventory of custom-developed software applications. When a software development effort is approved, completed, or terminated, the application inventory will be updated. This inventory will include:

Application Name
Functional Description
Software Environment
(for example, operating system required, programming language)
Hardware Requirements
(for example, CPU required, memory requirements, storage requirements)
Development Start Date
Installation Date
Installation Date Projected/Actual Indicator
Use Termination Date
System Developer(s)
System Owner(s) (Name, Position, Telephone Number)
System Manager(s) (Name, Position, Telephone Number)

c. Responsibilities

1) The MIS Division Chief is responsible for compiling and maintaining an ADP resource inventory and providing necessary inventory data to the DOI Office of Information Resources Management. The necessary data will be accurate and provided on a timely basis.

2) Assistant Directors and Field Office Directors are responsible for ensuring that ADP resource inventories are maintained.

4. Reporting Requirements

Updates to the hardware, software, and application inventories will be provided to the MIS Division Chief semiannually (at the end of the second and fourth quarters) in the electronic format specified by the MIS Division Chief.

5. References

Department of the Interior Departmental Manual, Part 376 DM 11, Information Resources Management—ADP Resource Inventories.

Paperwork Reduction Act of 1980 (44 USC 3501).

General Services Administration, Federal Information Resources Management Regulations (FIRMR).

6. Effect on Other Documents

None

7. Effective Date

Upon issuance

8. Contact

MIS Division Chief

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E. AUTOMATED INFORMATION SYSTEMS MANAGEMENT ACCOUNTABILITY

1. Purpose

This section provides Office of Surface Mining (OSM) policies and responsibilities concerning management accountability for automated information systems.

2. Definitions

a. Terms

Automated Information System (AIS). An organized combination of human resources, ADP equipment, software, and established methods and procedures designed to collect, process, and/or communicate data or information for the purposes of supporting specific administrative, mission, or program requirements.

Major AIS. An AIS that requires special, continuing management attention because of its importance to the support of a mission; its high development, operation, or maintenance costs; or its significant impact on the administration of programs, finances, property, or other resources. An AIS is determined to be major when it meets any one of the following criteria:

- The system directly affects the ability of DOI or OSM to perform a mission designated by the President, the Congress, the Office of Management and Budget, or the Secretary as being of importance.
- The system involves a significant investment, including personnel costs, relating to development, operation, and/or maintenance. In this context, significant investment has occurred if (a) the cost of initial development from conception to implementation exceeds $1 million, (b) the cost of operating and maintaining the system in any one year exceeds $0.5 million, or (c) the total life-cycle cost exceeds $5 million.
- The system affects national security or the security and safety of people, substantial financial resources, or other valuable assets.
- The system is used throughout DOI.
- The system supports a function that is multi-bureau in scope.
- The system directly affects DOI's ability to meet a critical departmental, national, or international mission.

System Owner/Steward. The program official whose program is supported by the AIS and is the primary user of the AIS, who initiated development of the AIS, or who exercises functional oversight of the AIS. The system owner is responsible and accountable for the products of the system. In some cases, system ownership may be shared.

System Manager/Custodian. The individual who protects, operates, and/or maintains an AIS in accordance with a service agreement with the system owner. In some instances, system management responsibilities may be shared.

b. Abbreviations

ADP	Automated Data Processing
AIS	Automated Information System
DOI	Department of the Interior
MIS	Management Information Systems Division
OSM	Office of Surface Mining

3. Policy/Procedures

a. Policy

Each OSM application shall be assigned a system owner and system manager. In the case of major information system applications (as defined by DOI), the system owner and manager shall not be the same individual.

b. Procedures

Upon initiation of new application development or acquisition, system owners and managers shall be appointed and reported in accordance with policies and procedures found in section III.D, IRM Resource Inventories, and section II.C, IRM Planning.

c. Responsibilities

1) The MIS Division Chief is responsible for ensuring that system owners and managers are assigned responsibility for and are held properly accountable for the efficiency and effectiveness of their application systems.

2) Assistant Directors are responsible for:

a) Ensuring that system owners and managers are appointed for each application.

b) Ensuring that system owners and managers are aware of their responsibilities and are held accountable for meeting those responsibilities.

c) Ensuring that system owners and managers are reported in accordance with section III.D, IRM Resource Inventories.

3) The System Owner is responsible and accountable for the products of the AIS. The responsibilities of the System Owner include:

a) Defining the system's functional requirements.

b) Providing functional oversight.

c) Conducting a periodic review of system requirements in order to determine whether the requirements continue to exist and the system continues to meet, in an efficient and cost-effective manner, the purposes for which it was developed.

d) Securing required information systems support for the AIS.

e) Ensuring that a Continuity of Operations Plan is developed for the AIS.

f) Establishing formal, written standards for program changes (both scheduled and emergency) and authorizing all scheduled program changes.

g) Ensuring that internal controls and operating policies that address the functionality of the AIS are implemented as required.

h) Certifying the AIS to ensure that it satisfies its defined functional and quality requirements.

4) The System Manager is responsible for:

a) Assisting the system owner in defining system requirements.

b) Coordinating with OSM records managers regarding retention periods and disposal standards applicable to the various types of data and storage media.

c) Ensuring that internal control reviews, as outlined in the DOI Automated Application System Control Evaluation Guideline, are conducted as required.

d) Coordinating with the MIS Information Resources Security Administrator to determine appropriate security requirements before the AIS is acquired or developed and certifying before implementation that the AIS satisfies applicable security regulations, policies, and standards and that its security safeguards are adequate.

e) Providing operations and/or maintenance support.

f) Ensuring that all program changes meet formal, written standards and notifying the system owner when emergency program changes are made.

g) Forecasting development, implementation, and operational costs of the AIS.

4. Reporting Requirements

Updates to the hardware, software, and application inventories will be provided to the MIS Division Chief semiannually (at the end of the second and fourth quarters) in the electronic format specified by the MIS Division Chief.

5. References

Department of the Interior Departmental Manual, Part 376 DM 13, ADP—Automated Information Systems Management Accountability.

Department of the Interior Departmental Manual, Part 375 DM 4, IRM Strategic Planning.

Department of the Interior Departmental Manual, Part 375 DM 7, Economic Analysis in Support of IRM Decision Making.

Department of the Interior Departmental Manual, Part 375 DM 19, Information Resources Security Program.

Department of the Interior Departmental Manual, Part 376 DM 10, Life-Cycle Management of AIS.

Department of the Interior Departmental Manual, Part 382 DM 11, Managing Records in Electronic Form.

Department of the Interior Departmental Manual, Part 383 DM 1–12, Management and Safeguarding of Privacy Act Records.

Department of the Interior, Project Manager's Guide to Applications Systems Life-Cycle Management.

Automated Application System Internal Control Guideline.

Office of Management and Budget, OMB Circular No. A–123, Internal Control Systems.

Office of Management and Budget, OMB Circular No. A–130, Management of Federal Information Resources.

Office of Management and Budget, OMB Circular No. A–127, Financial Management Systems.

Federal Managers Financial Integrity Act.

Paperwork Reduction Act of 1980 (Public Law 96–511).

Paperwork Reduction Reauthorization Act of 1986 (Public Law 99–500).

Computer Security Act of 1987 (Public Law 100–235).

Federal Information Processing Standards (FIPS).

6. Effect on Other Documents

None

7. Effective Date

Upon issuance

8. Contact

MIS Division Chief

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Chapter IV

TELECOMMUNICATIONS

TELECOMMUNICATIONS

1. Purpose

This section explains Office of Surface Mining policies and procedures for identification and use of telecommunications systems.

2. Definitions

a. Terms

Telecommunications Facilities. Equipment used for telephone, telegraph, teletype, data, facsimile, telephotograph, video, and audio transmissions, and such corollary items as distribution systems and communications security facilities.

Telecommunications Service. The transmission, emission, or reception of signals, signs, writing, images, sounds, or intelligence of any nature, by wire, radio, visual, or other electrical, electromagnetic, or acoustically coupled means.

b. Abbreviations

ADP	Automated Data Processing
DOI	Department of the Interior
FTS	Federal Telephone System
MIS	Management Information Systems Division
OSM	Office of Surface Mining

3. Policy/Procedures

a. Policy

OSM telecommunications decisions will be made in accordance with Federal and DOI standards and guidance.

b. Procedures

1) Acquisition of telecommunications facilities and services should be made in accordance with the policies outlined in section III.A, ADP Acquisition.

2) OSM will participate in the FTS 2000 Data Communications Coordination Council, which serves as a forum for the exchange of information on FTS 2000 matters. The council is involved in general planning for DOI's use of FTS 2000 data services and ensuring that those services are used efficiently and cost-effectively. The council also coordinates activities related to implementation of

FTS 2000 data communications services and identifies opportunities for the bureaus to share technical expertise, resources, and access to FTS 2000 services.

3) Telecommunications requirements should be satisfied through equipment and software that meets Federal, DOI, and OSM standards.

Detailed information regarding specific telecommunications topics may be found in DOI telecommunications handbooks (see references).

c. Responsibilities

1) The MIS Division Chief is responsible for:

a) Ensuring OSM-wide compliance with Federal, DOI, and OSM standards.

b) Providing guidance to Assistant Directors and other OSM organizations regarding telecommunications issues.

c) Appointing an OSM primary and alternate representative for the FTS 2000 Data Communications Coordination Council.

2) Assistant Directors are responsible for ensuring compliance with Federal, DOI, and OSM standards within the assistant directorate.

3) OSM's FTS 2000 Data Communications Coordination Council Representative is responsible for attending council meetings, presenting OSM concerns and issues, assisting in council analyses and evaluations, and keeping other OSM individuals informed with regard to progress and issues.

4. Reporting Requirements

None

5. References

Department of the Interior Departmental Manual, Part 377 DM 2, Telecommunications.

General Services Administration, Federal Information Resources Management Regulation.

General Services Administration, Glossary of Telecommunications Terms, FED STD 1037A.

Department of the Interior Telecommunications Handbooks:

Radio Communications Handbook
Telecommunications Terminology Handbook
Telephone Systems Handbook
Local Area Network Guide

DOI Mainframe Strategy, May 1988

6. Effect on Other Documents

None

7. Effective Date

Upon issuance

8. Contact

MIS Division Chief

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Chapter V

DATA ADMINISTRATION

The Office of Surface Mining Division of Management Information Systems will promulgate data administration policies at a later date.

Appendix A.

OFFICE OF SURFACE MINING
ADP DOCUMENTATION CONTENT GUIDELINES

Appendix A
OFFICE OF SURFACE MINING
ADP DOCUMENTATION CONTENT GUIDELINES

This appendix contains content guidelines for the ADP application documentation referenced in section II.C, Life Cycle Management of ADP Information Systems. Detailed explanations of the material that each document should contain are also provided.

Figure A–1 shows all Office of Surface Mining (OSM) documentation requirements as set forth in section II.C. The guidelines in this appendix are limited to Levels 1, 2, and 3 of that list, which encompass all system or application development projects except those involving major, service-wide efforts. These major development projects, which fall into Level 4 of the OSM documentation guidelines, require oversight by the U.S. Department of Interior Office of Information Resources Management. Accordingly, content guidance for Level 4 documentation is found in the DOI Project Manager's Guide to Application Systems Life Cycle Management. Figures A–2, A–3, A–4, and A–5 show the requirements for each documentation level. The following documentation is included in this appendix:

Document Title	Reference Number from OSM Documentation Requirements
Feasibility Study	1.2.5
Project Management Plan	1.2.9
Quality Assurance Plan	1.2.10
Cost/Benefit Analysis	1.2.11
Detailed Functional Requirements	2.1.2
Data Requirements	2.1.3
Unit Test Plan	2.3.1.1
Integration Test Plan	2.3.1.2
System Test Plan	2.3.1.3
Acceptance Test Plan	2.3.1.4
System/Subsystem Specification	2.3.3.1
Data Base Specification	2.3.3.2
Program Specification	2.3.3.4
Data Dictionary	2.3.3.6
Contingency Plan	2.3.5
Conversion Plan	2.4.3
User Training Plan	2.4.4
Program Maintenance Manual	2.4.6
User's Manual	2.4.8
Operations Manual	2.4.9
Data Base Administration Procedures Manual	2.4.10

The documentation is presented in the order that it is found in the OSM documentation requirements. Each document is paginated by its title and reference number from the documentation requirements list (Figure A–1) for easier reference and update. Gaps in the number scheme are the result of Level 4 documentation, which is discussed in DOI documentation guidance.

Figure A–1
COMPARISON OF MINIMUM DOCUMENTATION REQUIREMENTS

Life-Cycle Phase/Stage/Document		Level 4	Level 3	Level 2	Level 1
1	**INITIATION PHASE**				
1.1	**Mission Analysis Stage**				
1.1.1	Project Request	Required			
1.1.2	Mission Analysis Methodology	Required			
1.1.3	Cost/Benefit Analysis	Required			
1.1.4	Project Charter	Required			
1.1.5	Organizational Model	Required			
1.1.6	Mission Processes Model	Required			
1.1.7	Information Model	Required			
1.1.8	Mission Need Statement	Required			
1.2	**Concept Development Stage**				
1.2.1	System Objectives	Optional			
1.2.2	Application System Architecture	Optional			
1.2.3	Data Architecture	Optional			
1.2.4	Data Communications Architecture	Optional			
1.2.5	Feasibility Study		Required	Required	
1.2.6	System Life-Cycle Strategy	Required			
1.2.7	System Life-Cycle Dates	Required			
1.2.8	System Life-Cycle Resources Estimate	Required			
1.2.9	Project Management Plan		Required	Required	
1.2.10	Quality Assurance Plan		Required	Required[1]	
1.2.11	Cost/Benefit Analysis	Required	Required	Required	
1.2.12	Revised Mission Need Statement	Required			
1.2.13	System Decision Paper 1	Required			

1Incorporated in Project Management Plan.

Figure A-1 (Continued)
COMPARISON OF MINIMUM DOCUMENTATION REQUIREMENTS

Life-Cycle Phase/Stage/Document		Level 4	Level 3	Level 2	Level 1
2	**DEVELOPMENT PHASE**				
2.1	**System Analysis Stage**				
2.1.1	Current System Description	Optional	Required[2]	Required[2]	Optional[2]
2.1.2	Detailed Functional Requirements	Optional	Required	Required	Optional
2.1.3	Data Requirements	Required	Required	Required	Optional
2.2	**System Design Stage**				
2.2.1	Design Proposal	Required			
2.2.2	Detailed Cost/Benefit Analysis	Required			
2.2.3	Revised Life-Cycle Strategy	Required			
2.2.4	System Decision Paper 2	Required			
2.3	**System Construction and Acquisition Stage**				
2.3.1	Test Plans:				
2.3.1.1	Unit Test Plan		Required		
2.3.1.2	Integration Test Plan		Required		
2.3.1.3	System Test Plan	Required	Required		
2.3.1.4	Acceptance Test Plan		Required		
2.3.2	ADPE Specifications	Optional	Required[3]		
2.3.3	Application Software Documentation:				
2.3.3.1	System/Subsystem Specification	Optional	Required		
2.3.3.2	Data Base Specification	Optional	Required	Required	Optional
2.3.3.3	Detailed Process Design	Optional			
2.3.3.4	Program Specification	Optional	Required		
2.3.3.5	Test Data Design	Optional			
2.3.3.6	Data Dictionary	Optional	Required	Required	Optional
2.3.4	Control, Backup, and Security Study	Required	Required[4]	Required[4]	Required[4]
2.3.5	Contingency Plan		Required	Required	

[2]Incorporated in Detailed Functional Requirements.
[3]Incorporated in System/Subsystem Specification.
[4]Incorporated in User's Manual, Operations Manual, and Data Base Administration Procedures Manual.

Figure A-1 (Continued)
COMPARISON OF MINIMUM DOCUMENTATION REQUIREMENTS

Life-Cycle Phase/Stage/Document		Level 4	Level 3	Level 2	Level 1
2.4	**User Acceptance Stage**				
2.4.1	Current System Description	Required			
2.4.2	Mission Analysis Methodology	Required	Required[5]		
2.4.3	Cost/Benefit Analysis	Optional	Required		
2.4.4	User Training Plan	Optional	Required	Required	
2.4.5	Post-Implementation Review Plan	Required			
2.4.6	Program Maintenance Manual	Required	Required	Required	Optional
2.4.7	Data Processing Manual	Optional			
2.4.8	User's Manual	Optional	Required	Required	Required
2.4.9	Operations Manual	Optional	Required	Required	Required
2.4.10	Data Base Administration Procedures Manual		Required	Required	Required
2.4.11	System Decision Paper 3	Required			
3	**OPERATION AND MAINTENANCE PHASE**				
3.1	**Implementation Stage**				
3.1.1	Application Stewardship Document	Required			
3.2	**Maintenance Stage**				
3.2.1	Post-Implementation Review Report	Required			
3.2.2	System Decision Paper 4	Required			

[5]Incorporated in Conversion Plan.

Figure A–2
SUMMARY OF MINIMUM DOCUMENTATION REQUIREMENTS AND REFERENCE NUMBERS FOR OSM LEVEL 1

INITIATION PHASE

Mission Analysis Stage	None Required	
Concept Development Stage	None Required	

DEVELOPMENT PHASE

System Analysis Stage	Current System Description[1]	2.1.1
	Detailed Functional Requirements*	2.1.2
	Data Requirements*	2.1.3
System Design Stage	None Required	
System Construction and	Data Base Specification*	2.3.3.2
	Data Dictionary*	2.3.3.6
	Control, Backup, and Security Plan[2]	2.3.4
User Acceptance Stage	Program Maintenance Manual*	2.4.6
	User's Manual	2.4.8
	Operations Manual	2.4.9
	Data Base Administration Procedures Manual	2.4.10

OPERATION AND MAINTENANCE PHASE

Implementation Stage	None Required	
Maintenance Stage	None Required	

*Optional

[1]Incorporated in Detailed Functional Requirements.

[2]Incorporated in User's Manual, Operations Manual, and Data Base Administration Procedures Manual.

Figure A–3
SUMMARY OF MINIMUM DOCUMENTATION REQUIREMENTS AND REFERENCE NUMBERS FOR OSM LEVEL 2

INITIATION PHASE

Mission Analysis Stage	None Required	
Concept Development Stage	Feasibility Study	1.2.5
	Project Management Plan	1.2.9
	Quality Assurance Plan[1]	1.2.10
	Cost/Benefit Analysis	1.2.11

DEVELOPMENT PHASE

System Analysis Stage	Current System Description[2]	2.1.1
	Detailed Functional Requirements	2.1.2
	Data Requirements	2.1.3
System Design Stage	None Required	
System Construction and	Data Base Specification	2.3.3.2
	Data Dictionary	2.3.3.6
	Control, Backup, and Security Plan[3]	2.3.4
	Contingency Plan	2.3.5
User Acceptance Stage	User Training Plan	2.4.4
	Program Maintenance Manual	2.4.6
	User's Manual	2.4.8
	Operations Manual	2.4.9
	Data Base Administration Procedures Manual	2.4.10

OPERATION AND MAINTENANCE PHASE

Implementation Stage	None Required
Maintenance Stage	None Required

[1]Incorporated in Project Management Plan.

[2]Incorporated in Detailed Functional Requirements.

[3]Incorporated in User's Manual, Operations Manual, and Data Base Administration Procedures Manual.

Figure A–4
SUMMARY OF MINIMUM DOCUMENTATION REQUIREMENTS AND REFERENCE NUMBERS FOR OSM LEVEL 3

INITIATION PHASE

Mission Analysis Stage	None Required	
Concept Development Stage	Feasibility Study	1.2.5
	Project Management Plan	1.2.9
	Quality Assurance Plan	1.2.10
	Cost/Benefit Analysis	1.2.11

DEVELOPMENT PHASE

System Analysis Stage	Current System Description[1]	2.1.1
	Detailed Functional Requirements	2.1.2
	Data Requirements	2.1.3
System Design Stage	None Required	
System Construction and Acquisition Stage	Unit Test Plan	2.3.1.1
	Integration Test Plan	2.3.1.2
	System Test Plan	2.3.1.3
	Acceptance Test Plan	2.3.1.4
	ADPE Specification[2]	2.3.2
	System/Subsystem Specification[2]	2.3.3.1
	Data Base Specification	2.3.3.2
	Program Specification	2.3.3.4
	Data Dictionary	2.3.3.6
	Control, Backup, and Security Plan[3]	2.3.4
	Contingency Plan	2.3.5
User Acceptance Stage	Implementation Plan[4]	2.4.2
	Conversion Plan	2.4.3
	User Training Plan	2.4.4
	Program Maintenance Manual	2.4.6
	User's Manual	2.4.8
	Operations Manual	2.4.9
	Data Base Administration Procedures Manual	2.4.10

[1]Incorporated in Detailed Functional Requirements.

[2]Incorporated in System/Subsystem Specification.

[3]Incorporated in User's Manual, Operations Manual, and Data Base Administration Procedures Manual.

[4]Incorporated in Conversion Plan.

Figure A–4 (Continued)
SUMMARY OF MINIMUM DOCUMENTATION REQUIREMENTS AND REFERENCE NUMBERS FOR OSM LEVEL 3

OPERATION AND MAINTENANCE PHASE

Implementation Stage	None Required
Maintenance Stage	None Required

Figure A–5
SUMMARY OF MINIMUM DOCUMENTATION REQUIREMENTS AND REFERENCE NUMBERS FOR OSM LEVEL 4

INITIATION PHASE

Mission Analysis Stage	Project Request	1.1.1
	Mission Analysis Methodology	1.1.2
	Cost/Benefit Analysis	1.1.3
	Project Charter	1.1.4
	Organizational Model	1.1.5
	Mission Process Model	1.1.6
	Information Model	1.1.7
	Mission Need Statement	1.1.8
Concept Development Stage	System Objectives*	1.2.1
	Application System Architecture*	1.2.2
	Data Architecture*	1.2.3
	Data Communications Architecture*	1.2.4
	System Life-Cycle Strategy	1.2.6
	System Life-Cycle Dates	1.2.7
	System Life-Cycle Resources Estimate	1.2.8
	Cost/Benefit Analysis	1.2.11
	Revised Mission Need Statement	1.2.12
	System Decision Paper 1	1.2.13

DEVELOPMENT PHASE

System Analysis Stage	Current System Description*	2.1.1
	Detailed Functional Requirements*	2.1.2
	Data Requirements	2.1.3
System Design Stage	Design Proposal	2.2.1
	Detailed Cost/Benefit Analysis	2.2.2
	Revised Life-Cycle Strategy	2.2.3
	System Decision Paper 2	2.2.4
System Construction and Acquisition Stage	System Test Plan	2.3.1.3
	ADPE Specifications*	2.3.2
	System/Subsystem Specification*	2.3.3.1
	Data Base Specification*	2.3.3.2
	Detailed Process Design*	2.3.3.3
	Program Specification*	2.3.3.4
	Test Data Design*	2.3.3.5
	Data Dictionary*	2.3.3.6
	Control, Backup, and Security Plan	2.3.4

*Optional

Figure A–5 (Continued)
MINIMUM DOCUMENTATION REQUIREMENTS FOR OSM LEVEL 4

User Acceptance Stage	System Acceptance Report	2.4.1
	Implementation Plan	2.4.2
	Conversion Plan*	2.4.3
	User Training Plan*	2.4.4
	Post-Implementation Review Plan	2.4.5
	Program Maintenance Manual	2.4.6
	Data Processing Manual*	2.4.7
	User's Manual*	2.4.8
	Operations Manual*	2.4.9
	System Decision Paper 3	2.4.11

OPERATION AND MAINTENANCE PHASE

Implementation Stage	Application Stewardship Document	3.1.1
Maintenance Stage	Post-Implementation Review Report	3.2.1
	System Decision Paper 4	3.2.2

FEASIBILITY STUDY
(1.2.5 on OSM Documentation Requirements List)

Purpose OSM managers and the information systems staff use the information in the Feasibility Study to ensure that:

- A number of alternatives for developing a new system or an enhancement to an existing system are considered
- Requirements for the selected alternative are clearly understood and thoroughly developed
- Continued development of the system or enhancement is warranted and can be justified in terms of cost and benefits.

Content The Feasibility Study presents a conceptual design for a new system or an enhancement to an existing system. The recommended design should be the best of a number of alternatives, each of which should be discussed in the study. Considerations involved in making the recommendation include:

- A description of what the proposed system or enhancement will be required to do and how it will meet those requirements
- An analysis of the existing system or process and formulation of alternative systems or enhancements which improve that system or process
- Quantitative and qualitative evaluation criteria that lead to selection of the best alternative.

Figure A–6 summarizes the information required in the Feasibility Study by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

The Cost/Benefit Analysis can be included as an appendix to the Feasibility Study or documented separately. Requirements for this document are discussed later in this appendix, and its table of contents is shown in Figure A–9.

Figure A-6
TABLE OF CONTENTS FOR FEASIBILITY STUDY
(1.2.5 on OSM Documentation Requirements List)

1. Introduction

    1.1 Background
    1.2 Scope
    1.3 References

2. Management Summary

    2.1 Requirements
    2.2 Objectives
    2.3 Assumptions and Constraints
    2.4 Methodology
    2.5 Evaluation Criteria
    2.6 Recommendation
    2.7 Other Alternatives Considered

3. System Requirements and Objectives

    3.1 Requirements

        3.1.1 Output
        3.1.2 Input
        3.1.3 Data Base and Files
        3.1.4 Validation
        3.1.5 Processing and Data Flow
        3.1.6 Security
        3.1.7 Information Storage and Retrieval
        3.1.8 Interface

    3.2 Objectives

4. Analysis of the Existing System

    4.1 Processing and Data Flow
    4.2 Workload
    4.3 Costs
    4.4 Personnel
    4.5 Equipment
    4.6 Limitations

5. Proposed System

    5.1 Description of Proposed System
    5.2 Improvements

Figure A-6 (Continued)
TABLE OF CONTENTS FOR FEASIBILITY STUDY
(1.2.5 on OSM Documentation Requirements List)

Feasibility Study

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the project and why it is being conducted.
1.2	Scope	Explain why the Feasibility Study is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the Feasibility Study. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency, and industry standards and guidelines.

Section	Title	Content
2	Management Summary	Summarize material presented in the study. Present evidence that the proposed system or enhancement meets requirements.
2.1	Requirements	Summarize the requirements that the new system or enhancement will fulfill. Possibilities include: • New services • Increased capacity • Legislative/policy improvements • Privacy and security • Audit controls. Show that the new system or enhancement can be available by the estimated target/completion date.
2.2	Objectives	Summarize the major performance objectives for the new system or enhancement. Possibilities include: • Reduced costs • Increased productivity • Increased processing speed • Improved management services • Improved controls • Compliance with regulations.
2.3	Assumptions and Constraints	Describe any factors that affect the conclusions of the study. Possibilities include: • Operational life of the proposed system • Period of time allowed for comparison of alternatives • Interaction of the new system or enhancement with other systems and organizations • Input, processing, and output requirements • Financial constraints • Legislative/policy constraints • Changing hardware, software, or operating environment • Availability of information and resources.

Section	Title	Content
2.4	Methodology	Provide a detailed description of how the study was conducted and how the current system or method, the proposed system or enhancement, and the alternatives were evaluated and compared. Summarize the method or strategy used (for example, survey, weighting, modeling, benchmarking, prototyping, or simulation).
2.5	Evaluation Criteria	Identify the factors that were used to arrive at the recommendations made in the study. Possibilities include cost, priority, development time, and ease of use.
2.6	Recommendation	Present the results of the study. Include the consequences of not taking action and whether delays can be tolerated.
2.7	Other Alternatives Considered	Describe each of the alternatives and explain why it was not selected.

Section	Title	Content
3	System Requirements and Objectives	Provide a high-level description of what the new system or enhancement will be required to do and how it will meet those objectives. Identify the items that are mandatory.
3.1	Requirements	Describe what the new system or enhancement will be required to do.
3.1.1	Output	Describe what the system will produce. Possibilities include reports, documents, and data. For each item, include characteristics such as how it will be used, how often it will be required, how it will relate to other products, and how it will be distributed.
3.1.2	Input	Describe the data that the new system or enhancement will use to generate the output. Include the source of the data; the type, volume, and organization of the data; and how often the data will be submitted.
3.1.3	Data Base and Files	Describe the files that the new system or enhancement will use. Include the content of each file, its purpose, how it will be used in the new system or enhancement, and how often it will need to be updated.
3.1.4	Validation	Describe the criteria that will be used to validate data in the new system or enhancement.
3.1.5	Processing and Data Flow	Explain how the new system or enhancement processes data. Provide a flow chart that shows major functions, processes, and activities and describe each in the text.
3.1.6	Security	Provide detailed requirements for security, privacy, and control of the new system or enhancement.

Section	Title	Content
3.1.7	Information Storage and Retrieval	Explain where and how the new system or enhancement will store data and how and for what purposes the data will be retrieved. Describe any additional or special requirements for information storage and retrieval.
3.1.8	Interface	Identify any other systems with which the new system or enhancement shares information or other data processing activities. Explain how the interaction is accomplished and any possible effects on either system.
3.2	Objectives	Explain the major performance objectives for the new system or enhancement in terms of the requirements stated in the previous section.

Section	Title	Content
4	Analysis of the Existing System	Provide an objective description of the system that is to be replaced or enhanced. This will provide a starting point for determining the economic and managerial advantages of the new system or enhancement.
4.1	Processing and Data Flow	Explain how the existing system processes data. Provide a flow chart that shows major functions, processes, and activities and describe each in the text.
4.2	Workload	Describe the volume of work handled by the existing system and explain how the volume of work affects the system's performance.
4.3	Costs	Provide an itemized list that shows how much it costs to operate the existing system. Include manpower, equipment, space, support services, materials, and overhead. Detailed information can be included in the Cost/Benefit Analysis. If so, summarize the information here and refer the reader to the Cost/Benefit Analysis.
4.4	Personnel	Describe the skill categories and numbers of people who operate and maintain the existing system. Include both government and contractor employees.
4.5	Equipment	Describe the equipment the existing system uses. Include system hardware, peripheral devices, and accessories.
4.6	Limitations	Explain the existing system's deficiencies. Possibilities include inadequate information or lack of timely information (as related to decision makers and others who use the information), inefficient use of resources, technical problems, and organizational or policy considerations.

Section	Title	Content
5	Proposed System	Describe how the requirements and objectives discussed in Section 3 will be met. Limit the discussion to the recommended system or enhancement only. Include any information that will enable concerned parties to determine how the system or enhancement will affect other systems.
5.1	Description of the Proposed System	Explain the concept of the new system or enhancement in terms of how it will meet the requirements discussed in Section 3. Describe how the concept was developed, including any software engineering tools or methodologies that were used, also in terms of the requirements.
5.2	Improvements	Explain how the new system or enhancement will improve functions, processes, and activities in terms of the objectives discussed in Section 3.
5.3	Impacts	Explain how the new system or enhancement will affect existing systems and operations. Include potential conversion problems.
5.3.1	Equipment Impacts	Describe any new equipment or changes to existing equipment that will be required to implement the new system or enhancement.
5.3.2	Software Impacts	Describe any additions or modifications that will be required to adapt existing applications or support software to the new system or enhancement. If a software conversion effort is required, the rationale for the effort and the proposed conversion methodology should be discussed in a separate section.
5.3.3	Organizational Impacts	Describe any changes that will be required in the organization, the personnel in the organization, or the skills of the personnel.

Section	Title	Content
5.3.4	Operational Impacts	Describe how the new system or enhancement will affect the operations of the organization. Possibilities include automation of manual procedures, improved access data, and so forth.
5.3.5	Developmental Impacts	Describe how the development of the new system or enhancement will affect the organization. Include specific activities to be performed and by whom, resources that will be required in developmental phases and in testing the system or enhancement, and security and privacy considerations.
5.3.6	Site and Facility Impacts	Describe any modifications to existing work areas that the new system or enhancement will require.
5.3.7	Cost Impacts	Describe cost or budget considerations that could affect the development, implementation, or operation of the new system or enhancement.

Section	Title	Content
6	Alternative Systems	Describe each of the alternative systems or enhancements that were considered before selecting the final recommendation. If no alternatives were considered, explain why. Include a separate subsection for each alternative, and follow the outline in Section 5. For example: 6.1 Alternative System 1 6.1.1 Description 6.1.2 Improvements 6.1.3 Impacts 6.1.3.1 Equipment Impacts 6.1.3.2 Software Impacts 6.1.3.3 Organizational Impacts 6.1.3.4 Operational Impacts 6.1.3.5 Developmental Impacts 6.1.3.6 Site/Facility Impacts 6.1.3.7 Cost Impacts 6.n Alternative System n

Section	Title	Content
7	Rationale for Recommendation	Provide the reasons that support development of the new system or enhancement over the alternatives. Explain the decision in terms of quantifiable and nonquantifiable benefits, requirements and objectives, resources required to develop and operate the new system or enhancement, possible effects of delay, and consequences of not taking action. Quantifiable benefits are those which can be described in terms of measures such as dollars, time, and speed. Nonquantifiable benefits are those which cannot be measured, such as improved service and morale, greater efficiency, and enhanced image.

PROJECT MANAGEMENT PLAN
(1.2.9 on OSM Documentation Requirements List)

Purpose

The Project Management Plan identifies what needs to be done to implement a new system or an enhancement to an existing system, when it needs to be done, and what it will take to do it. It identifies the approach to managing the project, all tasks to be performed, the schedule for completing the tasks, and the resources required to complete the tasks.

The Project Management Plan is intended to be a dynamic document and should evolve as the various milestones in the project's life cycle are completed. Each update should provide greater detail to the current and near-term tasks, as well as any changes in project direction.

Content

The Project Management Plan defines each task in terms of its purpose, dependencies, activities, staff responsibilities, and anticipated results. Where applicable, results are defined in terms of deliverable products with a formal review and approval process. Resource requirements are defined in terms of equipment and staff (both development and operations). At the project and task level, schedules are based on manpower loading and other dependencies. Cost estimates should be included for staff and operations throughout the life of the proposed new system or enhancement.

Figure A–7 summarizes the information required in the Project Management Plan by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A–7
TABLE OF CONTENTS FOR PROJECT MANAGEMENT PLAN
(1.2.9 on OSM Documentation Requirements List)

1. Introduction

    1.1 Background
    1.2 Scope
    1.3 Assumptions and Constraints
    1.4 Summary of the Project Management Plan

        1.4.1 Milestones

    1.5 References

2. Project Organization and Management

    2.1 Organization
    2.2 Reporting Relationships
    2.3 Unit/Staff Responsibilities

3. Resources

    3.1 Personnel

        3.1.1 Skill Mix
        3.1.2 Manpower Loading
        3.1.3 In-House/Contractor Support

    3.2 ADP Equipment
    3.3 Facilities
    3.4 Other Resources

4. Project Execution (by Phase)

    4.1 Task Descriptions
    4.2 Task Dependencies
    4.3 Products To Be Delivered

5. Project Costs (by Phase)

    5.1 Equipment
    5.2 In-House Staff
    5.3 Contractor Staff
    5.4 Operations

Figure A-7 (Continued)
TABLE OF CONTENTS FOR PROJECT MANAGEMENT PLAN
(1.2.9 on OSM Documentation Requirements List)

6. Project Execution Feedback

    6.1 Evaluating Project Execution
    6.2 Enhancement Evaluation Plan
    6.3 Configuration Management Transition Plan

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the project and why it is being conducted.
1.2	Scope	Explain why the Project Management Plan is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Assumptions and Constraints	Describe any factors that may affect the project's organization, schedule, and resource requirements as described in the Project Management Plan.
1.4	Summary of the Project Management Plan	Provide a brief summary of the most important information in the Project Management Plan.
1.4.1	Milestones	List the major milestones in the Project Management Plan. Present this information in a Gantt chart supplemented by text.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the Project Management Plan. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency, and industry standards and guidelines.

Section	Title	Content
2	Project Organization and Management	Describe the project's structure.
2.1	Organization	Provide a detailed description of the project's organization and the management approach that will be used. Explain why each was selected.
2.2	Reporting Relationships	Define procedures for reporting, monitoring, and control.
2.3	Unit/Staff Responsibilities	Define responsibilities for all key positions.

Section	Title	Content
3	Resources	For each of the categories in the subsections listed below, identify and describe in detail all resources required to complete the project. Indicate sources, timing requirements, and any anticipated shortfalls. 3.1 Personnel 3.1.1 Skill Mix 3.1.2 Manpower Loading 3.1.3 In-House/Contractor Support 3.2 ADP Equipment 3.3 Facilities 3.4 Other Resources

Section	Title	Content
4	Project Execution (by Phase)	Describe the key milestones for the project. Include a detailed Gantt chart or similar graphic description of the entire project.
4.1	Task Descriptions	Provide a detailed work breakdown for each task. If automated systems are being used to manage the project, system output such as charts and task lists may be used if they are detailed enough to be self-explanatory. Otherwise they should be supplemented by additional text.
4.2	Task Dependencies	Explain how the tasks relate to one another. Explain which tasks can be performed concurrently and those that cannot begin until another task is completed. Explain the effects of delays in completing tasks.
4.3	Products To Be Delivered	Based on approved items from the configuration identification process, describe the products that will result from each task.

Section	Title	Content
5	Project Costs (by Phase)	For each of the categories in the subsections listed below, provide a summary of costs by project phase. 5.1 Equipment 5.2 In-House Staff 5.3 Contractor Staff 5.4 Operations

Section	Title	Content
6	Project Execution Feedback	Provide information about activities to take place after the new system or enhancement is operational.
6.1	Evaluating Project Execution	Describe methods and procedures for evaluating how well the plan accomplishes its goals. Consider adherence to schedules, effectiveness and availability of resources, and user feedback (with respect to the quality of products or accomplishments and the effectiveness of project direction.
6.2	Enhancement Evaluation Plan	Describe methods and procedures for evaluating requested enhancements. Include procedures for requests, evaluation, and approval.
6.3	Configuration Management Transition Plan	Describe the procedures for updating the Project Management Plan based upon changes to project scope or schedule. Include procedures for ongoing plan maintenance and procedures for changes resulting from significant project enhancements. Include approval/evaluation procedures and identify associated individuals and responsibilities, as appropriate.

QUALITY ASSURANCE PLAN
(1.2.10 on OSM Documentation Requirements List)

Purpose

The Quality Assurance Plan provides the standards against which a new system or an enhancement to an existing system will be evaluated. It also details how these standards are to be implemented and applied both in the system's development phase and when the system becomes operational. Standards are determined through analysis of requirements and applicable directives, guidelines, and policy.

Contractors assisting in development activities must be aware that some quality assurance activities (for example, reviews of deliverables) are the sole responsibility of the government while others (such as design reviews and walkthroughs) are joint activities. Thus the Quality Assurance Plan needs to be prepared in conjunction with the OSM QA staff assigned to the project, and it must be approved and incorporated into OSM management activities.
A preliminary Quality Assurance Plan and schedule of activities is prepared during the project initiation phase. It is updated in succeeding phases as more information becomes available.

Content

The Quality Assurance Plan outlines specific quality assurance activities that will verify the integrity of software products during each phase of the life cycle of a new system or an enhancement to an existing system. Specific quality assurance review activities to be accomplished during the mission analysis, system design, system construction and acquisition, and user acceptance stages of the project are outlined. These include preliminary design reviews, software design walkthroughs, final design reviews, and system plan reviews. Review of documentation is also incorporated into the plan.

The plan also identifies the Quality Assurance Coordinator for the project, as well as the ad hoc quality assurance team. The QA team is responsible for ensuring that the quality assurance activities are accomplished.

Figure A–8 summarizes the information required in the Quality Assurance Plan by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A–8
TABLE OF CONTENTS FOR QUALITY ASSURANCE PLAN
(1.2.10 on OSM Documentation Requirements List)

1. Introduction

    1.1 Background
    1.2 Scope
    1.3 Assumptions and Constraints
    1.4 Summary of the Quality Assurance Plan
    1.5 References

2. Quality Assurance Reviews

    2.1 Deliverables

        2.1.1 Deliverable 1
        2.1.n Deliverable n

    2.2 Milestones

        2.2.1 Milestone 1
        2.2.n Milestone n

    2.3 Structured Walkthroughs

        2.3.1 Structured Walkthrough 1
        2.3.n Structured Walkthrough n

    2.4 Testing

        2.4.1 Unit Tests
        2.4.2 System Tests
        2.4.3 Integration Tests
        2.4.4 Acceptance Tests

    2.5 Inspections

        2.5.1 Inspection 1
        2.5.n Inspection n

3. Quality Assurance Review Schedule

4. Summary of Results

Quality Assurance Plan

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the system development project and why it is being conducted.
1.2	Scope	Explain why the Quality Assurance Plan is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Assumptions and Constraints	Describe any factors that may affect the activities and schedules described in the Quality Assurance Plan.
1.4	Summary of the Quality Assurance Plan	Provide a brief summary of the most important information in the Quality Assurance Plan.
1.5	References	List pertinent project documentation and any other materials used to prepare the Quality Assurance Plan.

Section	Title	Content
2	Quality Assurance Reviews	Describe the various quality assurance activities that will take place throughout the life cycle of the new system or enhancement.
2.1	Deliverables	Describe the steps to be taken to transmit, review, comment on, and revise all project documentation in a separate subsection for each deliverable. For example: 2.1.1 Deliverable 1 2.1.n Deliverable n Include the material to be reviewed, the person(s) responsible, the anticipated schedule, and evaluation criteria.
2.2	Milestones	Describe the steps to be taken to prepare for, conduct, and respond to all milestone reviews in a separate subsection for each milestone. For example: 2.2.1 Milestone 1 2.2.n Milestone n Include the person(s) responsible for conducting the review, attendees, materials to be reviewed, material that should be read prior to the review, the anticipated schedule, and evaluation criteria.
2.3	Structured Walkthroughs	Describe the steps to be taken to prepare for, conduct, and respond to all structured walkthroughs in a separate subsection for each walkthrough. For example: 2.3.1 Structured Walkthrough 1 2.3.n Structured Walkthrough n Include the person(s) responsible for conducting the review, attendees, materials to be reviewed, material that should be read prior to the review, the anticipated schedule, and evaluation criteria.

Section	Title	Content
2.4	Testing	Because detailed information on testing activities is provided in other documentation, the Quality Assurance Plan needs only to identify the tests and the anticipated schedules. Include a separate subsection for each test. For example: 2.4.1 Unit Tests 2.4.2 System Tests 2.4.3 Integration Tests 2.4.4 Acceptance Tests
2.5	Inspections	Identify all the steps involved in conducting and responding to quality assurance inspections in a separate subsection for each inspection. For example: 2.5.1 Inspection 1 2.5.n Inspection n Include the person(s) responsible for the inspection, the anticipated schedule, and evaluation criteria.

Section	Title	Content
3	Quality Assurance Review Schedule	Provide a complete schedule of all quality assurance activities.

Section	Title	Content
4	Summary of Results	As each quality assurance activity is completed, provide a summary of the results of the test and responsibilities for any required actions.

COST/BENEFIT ANALYSIS
(1.2.11 on OSM Documentation Requirements List)

Purpose — OSM managers and the information systems staff use the Cost/Benefit Analysis to analyze and evaluate alternative approaches to developing and implementing a new system or an enhancement to an existing system. In conjunction with the Feasibility Study, it provides information needed to ensure that the proper alternative has been selected and that continued development of the new system or enhancement is warranted.

Content — The Cost/Benefit Analysis can be included as an appendix to the Feasibility Study or documented separately. It details the costs required to develop and operate each alternative as well as the costs of continued operation of the existing system. It summarizes the benefits, both quantifiable and nonquantifiable, of each alternative. A comparison of the costs and benefits and an analysis of their sensitivity to key factors lead to a recommendation.

Figure A–9 summarizes the information required in the Cost/Benefit Analysis by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the project and why it is being conducted.
1.2	Scope	Explain why the analysis was conducted and provide a summary of the document's organization. Include a brief description of the alternatives that were evaluated the major cost factors that were considered, as well a system-related topics that were excluded from consideration.
1.3	Performance and Characteristics	Briefly describe the requirements and objectives for the new system or enhancement. Include operational requirements, system life expectancy, and workload.
1.4	Assumptions and Constraints	Describe any factors that affect the conclusions of the analysis. Possibilities include: • Operational life of the proposed system • Period of time allowed for comparison of alternatives • Financial constraints • Legislative/policy constraints • Availability of information and resources.
1.5	Methodology	Provide a detailed description of how the analysis was conducted. Include the techniques used to estimate and compute costs.
1.6	Evaluation Criteria	Identify the factors that were used to evaluate the alternatives. Possibilities include organizational objectives, operational efficiency, and reduced operating costs.

Section	Title	Content
1.7	Summary of Recommendations	Summarize the results of the analysis, including the recommended alternative. The summary can be supplemented by a table as shown in Figure A–10.
1.8	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the Cost/Benefit Analysis. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency, and industry standards and guidelines.

Figure A–10
COMPARATIVE COST/BENEFIT ANALYSIS SUMMARY
(Alternatives 1 Through n)

Comparative Cost/Benefit Analysis Summary					
	Alternative 1	Alternative 2			Alternative n
System Life Cost					
Present Value Cost					
Residual Value					
Discounted Residual Value					
Adjusted Cost					
System Life Benefit					
Present Value Benefit					
Net Present Value					
Benefit/Cost Ratio					
Payback Period					

Notes:

Section	Title	Content
2	Description of Alternatives	Provide a brief description of the technical and operational characteristics of the proposed new system or enhancement, the alternatives that were considered, and the existing system. If no alternatives were considered, explain why. The section should be organized with a subsection for each alternative. For example: 2.1 Existing System 2.2 Proposed System 2.3 Alternative System 1 2.n Alternative System n

Section	Title	Content
3	Costs	Detail the costs of developing and operating each of the alternatives. Include the costs of operating the existing system. Where applicable, compare the costs of a system developed, operated, or maintained in-house with those developed, operated, or maintained by contractors. Formats for a cost analysis and a cost analysis worksheet are shown in Figures A–11 and A–12.
3.1	Nonrecurring Costs	Present the nonrecurring costs for each alternative over the life of the system, broken down into capital investment and other nonrecurring costs.
3.1.1	Capital Investment	Capital investment includes acquisition, development, and installation costs for any of the following: • Site and facility • Data processing • Data communications • Environmental conditioning • Security and privacy • Software • Data base.
3.1.2	Other Nonrecurring Costs	Examples of other nonrecurring costs include • Requirements and design studies • Procurement activities • Data base preparation • Software conversion • Reviews and testing • Technical/management overhead • Personnel (training and travel, but not salary and benefits) • Involuntary retirement, severance, relocation, etc. • Contractual, interagency, or other direct support services • Incremental or additional overhead costs.

Figure A–11
COST ANALYSIS (Alternative x)

Cost Analysis for Alternative _____

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Nonrecurring Costs: Capital: Site/Facility Equipment ADPE Telecommunications Other Software Other: Studies Procurement Conversion/Parallel Operations Training/Travel							
Subtotal							
Recurring Costs: Equipment Software Data Communications Personnel Support Services Travel and Training Space Occupancy Supplies and Utilities Security and Privacy Services Overhead							
Subtotal							
Total Costs							
System Life Cost							
Present Value Cost							

Figure A–12
COST ANALYSIS WORKSHEET (Alternative x, Year n)

Alternative _____ **Year** _____

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual Totals
Nonrecurring Costs[1]:													
Subtotal													
Recurring Costs:													
Subtotal													
Total													
Present Value Factor[2]													
Present Value Cost													

[1]If timing is known, insert cost in appropriate month; otherwise, insert in last month of Fiscal Year.
[2]Refer to OMB Circular A–94.

Section	Title	Content
3.2	Recurring Costs	Present the monthly and/or quarterly recurring costs of operating and maintaining each alternative over the life of the system. Include the following: • Equipment lease, rental, and in-house maintenance • Software lease, rental, and in-house maintenance • Data communications lease, rental, and in-house maintenance • Personnel salaries and benefits • Direct support services (intra-agency services) • Travel and training • Space occupancy • Supplies and utilities • Security and privacy • Contractual and interagency services (for example, ADP services, data communications, software, technical support, other support) • Overhead that represents additional or incremental expenses attributable to the alternative.

Section	Title	Content
4	Benefits	Describe the benefits that can be attained by developing and implementing each alternative, in terms of quantifiable (recurring and nonrecurring) and nonquantifiable benefits that relate to organizational objectives, goals, missions, functions, and operating environments. Formats for a benefits analysis and a benefits analysis worksheet are shown in Figures A–13 and A–14.
4.1	Nonrecurring Benefits	Present the nonrecurring benefits in terms of data processing, users, administration, and support, broken down into three categories.
4.1.1	Cost Reduction	Include cost reductions that are a result of improved system operations. Possibilities include: • Reduced resource requirements • Improved operating efficiency • Improved entry, storage, and retrieval of data • System performance monitoring • Software conversion or optimization • Data compression techniques • Centralized or decentralized processing.
4.1.2	Value Enhancement	Include benefits that enhance the value of the system. Possibilities include: • Improved use of resources • More effective operations and administration • Fewer errors
4.1.3	Other Nonrecurring Benefits	Include any additional benefits. Possibilities include: • Offsetting receipts • Costs avoided • Value of excess equipment.

Figure A–13
BENEFIT ANALYSIS (Alternative x)

Benefit Analysis for Alternative _____

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Nonrecurring Benefits: Offsets: Cost Reduction Value Enhancement Other (Including Cost Avoidance)							
Subtotal							
Recurring Benefits: Cost Reduction: Equipment Software Data Communications Personnel Support Services Travel and Training Space Occupancy Supplies and Utilities Security and Privacy Services Overhead Other (Including Cost Avoidance)							
Subtotal							
Total Costs							
System Life Cost							
Present Value Cost							

Figure A–14
BENEFIT ANALYSIS WORKSHEET (Alternative x, Year n)

Alternative _____ **Year** _____

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual Totals
Nonrecurring Benefits[1]:													
Subtotal													
Recurring Benefits:													
Subtotal													
Total													
Present Value Factor[2]													
Present Value Benefit													

[1]If timing is known, insert value of benefit in appropriate month; otherwise, insert in last month of Fiscal Year.
[2]Refer to OMB Circular A–94.

Section	Title	Content
4.2	Recurring Benefits	Present the monthly and/or quarterly recurring benefits of operating and maintaining each alternative over the life of the system. Include the following: • Equipment lease, rental, and in-house maintenance • Software lease, rental, and in-house maintenance • Data communications lease, rental, and in-house maintenance • Personnel salaries and benefits • Direct support services (intra-agency services) • Travel and training • Space occupancy • Supplies and utilities • Security and privacy • Contractual and interagency services (for example, ADP services, data communications, software, technical support, other support • Overhead that represents additional or incremental expenses attributable to the alternative • Costs avoided through improvements in operational flexibility, information handling, and response to requirements.
4.3	Nonquantifiable Benefits	Describe benefits which cannot be quantified in terms of direct dollar values. Possibilities include: • Improved service • Reduced risk of error • Improved information handling • Enhanced organizational image. Intangible benefits can sometimes be assigned values in terms of estimates and tradeoffs. If possible, include boundary (best case and worst case) estimates to justify the alternative or cite tradeoffs where intangible benefits are gained at the expense of reduced potential for tangible benefits.

Section	Title	Content
5	Comparative Cost/Benefit Summary	Based on the data presented in Sections 3 and 4, compare the costs and benefits of each alternative. Provide supporting documentation as required for validation and management review. A format and instructions for preparing a cost/benefit summary can be found in Figure A–15.
5.1	Sensitivity Considerations	Sensitivity analysis is a tool used to assess the extent to which costs and benefits can be affected by factors such as • Length of system life, either shorter or longer • Variations in the estimated volume, mix, or pattern of workload • Changes in requirements resulting from either legislative mandate or changes in functional or organizational structure • Changes in the configuration of hardware, software, data communications, or other facilities • Changes in objectives, requirements, or operations • Changes in inflation rate or residual value of equipment, facilities, and software • Delays in completion of the project. Conducted on different configurations of the alternatives, the sensitivity analysis provides a range of costs and benefits that are likely to be a better guide than a single estimate. Explain the approach used to conduct the sensitivity analysis and explain the factors used and how they were selected. Present the results in a table as shown in Figure A–16, then conclude with a summary of key points and an evaluation of the validity and implications of the analysis.

Figure A-15
COST/BENEFIT ANALYSIS OVER SYSTEM LIFE (Alternative x)

Alternative _____

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Total Costs							
System Life Cost							
Present Value Cost							
Residual Value[1]							
Present Value Factor							
Discounted Residual Value							
Adjusted Cost[2]							
Total Tangible Benefits							
System Life Benefit							
Present Value Benefits							
Net Present Value							
Benefit/Cost Ratio							
Cumulative Benefits							
Cumulative Costs							
Payback (difference)							
Payback Period[3]							

[1]Remaining economic value of ownership of ADP resources in the last month of system life.
[2]Difference between present value cost and discounted residual value in the last month of system life.
[3]Point at which total benefits exceed total costs, excluding present values.

Figure A-16
SENSITIVITY ANALYSIS
(Alternatives 1 Through n, Factors 1 Through n)

Comparative Cost/Benefit Summary						
	Factor 1, **Useful Life** Range: 3, 5, 7 Years	Factor 2, **Volume of Work** Range: 3, 5, 7 Years				Factor n, **(name)** Range: (range)
Alternative 1 (name)						
Alternative 2 (name)						
Alternative 3 (name)						
Alternative n (name)						

Section	Title	Content
6	Recommendation	Select the most desirable alternative in terms of costs and benefits and justify the selection.

DETAILED FUNCTIONAL REQUIREMENTS
(2.1.2 on OSM Documentation Requirements List)

Purpose The Detailed Functional Requirements document provides a basis of understanding as to the function(s) to be performed by a new system or an enhancement to an existing system; specific hardware/software and performance requirements for the new system or enhancement; and additional considerations related to the operating environment of the new system or enhancement (interfaces, facilities, personnel, security, etc.). It is usually developed after an analysis of existing procedures and the needs of prospective users.

Content The Detailed Functional Requirements document describes the existing system and the deficiencies and limitations that led to the request for a new system or enhancement. It explains what the users require of the new system or enhancement from their perspective; thus it contains quantitative processing requirements in terms of work and data flow and deadlines and constraints. Interfaces with other systems, security and privacy, and audits and controls are also described.

Figure A–17 summarizes the information required in the Detailed Functional Requirements by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then presented in the pages that follow.

Figure A–17
TABLE OF CONTENTS FOR DETAILED FUNCTIONAL REQUIREMENTS
(2.1.2 on OSM Documentation Requirements List)

1. Introduction

    1.1 Background
    1.2 Scope
    1.3 Methodology
    1.4 Assumptions and Constraints
    1.5 Summary of the Detailed Functional Requirements
    1.6 References

2. Overview of Existing Methods and Procedures

    2.1 Organization/Personnel
    2.2 Equipment
    2.3 Inputs and Outputs
    2.4 Deficiencies and Limitations
    2.5 Pertinent Cost Considerations

3. Requirements

    3.1 Overview of Functions
    3.2 Relationships Among Functions
    3.3 Functional Requirements

        3.3.1 Function 1
        3.3.n Function n

4. External Considerations

    4.1 Organization/Personnel
    4.2 Design Standards and Constraints

        4.2.1 Facilities
        4.2.2 Hardware
        4.2.3 Software

    4.3 Interface Requirements

        4.3.1 Internal
        4.3.2 External

    4.4 Audits and Controls
    4.5 Security and Privacy
    4.6 Cost

Figure A–17 (Continued)
TABLE OF CONTENTS FOR DETAILED FUNCTIONAL REQUIREMENTS
(2.1.2 on OSM Documentation Requirements List)

Detailed Functional Requirements

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the system development project and why it is being conducted.
1.2	Scope	Explain why the Functional Requirements document is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Methodology	Provide a detailed description of how the functional requirements analysis was conducted.
1.4	Assumptions and Constraints	Describe any factors that may affect the requirements discussed in the document.
1.5	Summary of the Detailed Functional Requirements	Provide a brief summary of the most important information in the document.
1.6	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the document. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency, and industry standards and guidelines.

Section	Title	Content
2	Overview of Existing Methods and Procedures	Describe the system that is to be replaced or enhanced. Illustrate the data flow from data acquisition through processing and output and include interfaces with other systems. Explain how users perform operational functions.
2.1	Organization/ Personnel	Describe the organization and responsibilities of the people who work with the existing system.
2.2	Equipment	Describe all hardware used with the existing system.
2.3	Inputs and Outputs	Explain the type of data used as input to and the data output from the existing system. Include the media (diskette, tape, etc.), format, range of values, accuracy, volume and frequency, and other pertinent information. Describe and show examples of any hard-copy reports or graphics.
2.4	Deficiencies and Limitations	Explain the deficiencies and limitations that have led to the proposed new system or enhancement.
2.5	Pertinent Cost Considerations	Provide an overview of the cost of operating the existing system.

Section	Title	Content
3	Requirements	Describe the requirements for the new system or enhancement.
3.1	Overview of Functions	Describe the new system or enhancement, including an overview of the information processing requirements, performance requirements, inputs, and outputs of each major function. Identify techniques and procedures that will be incorporated from other systems or applications.
3.2	Relationships Among Functions	Describe the structure of the new system or enhancement and the relationships between each major function. This section should combine hierarchy charts with text.
3.3	Functional Requirements	Describe in detail the functional and performance requirements for each major function to be supported by the new system or enhancement. Include a separate subsection for each major function. For example: 3.3.1 Function 1 3.3.n Function n Describe functions in quantitative and qualitative terms. Describe how they satisfy performance objectives. Describe performance requirements in terms of the following criteria: • Accuracy — Describe data accuracy, including mathematical, logical, legal, and transmission requirements. • Validation — Describe data validation requirements. • Timing — Describe timing requirements for system response, update processing, data transfer and transmission, and throughput.

Section	Title	Content
		• Flexibility — Describe the new system or enhancement's capability for adapting to changes in requirements such as modes of operation, operating environment, interfaces with other systems and applications, accuracy and validation timing, and planned changes or improvements. Describe and show examples of data input. Specify the media, format, range of values, accuracy, etc. Describe and show examples of data output. Describe the characteristics of individual and composite data elements. Discuss size and scheduling considerations. Specify possible failures, the consequences, and actions that can minimize impact. Include backup, fallback, and recovery capabilities. Use visual representations of data flow where appropriate.

Section	Title	Content
4	External Considerations	Describe the operating environment of the new system or enhancement. Include any constraints imposed by the operating environment.
4.1	Organization/ Personnel	Describe the organization and responsibilities of the people who will work with the new system or enhancement.
4.2	Design Standards and Constraints	Describe facility, equipment, and support software requirements. Include constraints that any of these may impose.
4.2.1	Facilities	Describe the facilities required for the new system or enhancement. Include any new facilities required and relate them to specific functions or requirements.
4.2.2	Hardware	Identify the equipment required for the new system or enhancement. Include any new equipment required and relate it to specific functions or requirements. At a minimum, the following should be discussed: • Processor and size of internal storage • Online and offline storage, including media, format, and devices • Input and output devices, online and offline • Data communications and transmission devices.
4.2.3	Software	Identify the support software and describe any test or commercial software that will be used with the new system or enhancement. If the operation of the software depends on changes to existing support software, identify the nature of these changes and when they will take effect, and relate the changes to specific functions or requirements.

Section	Title	Content
4.3	Interface Requirements	Describe interfaces with other systems and software. Include a separate subsection for internal and external interfaces: 4.3.1 Internal — Interfaces between functions 4.3.2 External — Interfaces between systems
4.4	Audits and Controls	Describe operational audits and controls imposed on the new system or enhancement. Identify the sources of these controls.
4.5	Security and Privacy	Describe the overall security and privacy requirements for the new system or enhancement.
4.6	Cost	Provide an overview of the cost of operating the new system or enhancement.

Section	Title	Content
5	Improvements and Impacts	Summarize the improvements to be obtained and the anticipated impact of the new system or enhancement.
5.1	Improvements	Describe new capabilities, upgraded capabilities, deficiencies eliminated, improved response time and processing time, and capabilities eliminated or reduced.
5.2	Impacts	Describe impacts as they relate to the following: • Equipment — Changes to current equipment, new equipment, building requirements • Software — Additions or modifications required for existing applications or support software • Organization — Reorganization of functions and responsibilities, increase or decrease in staff level, upgrade or downgrade of staff skills • Operations — Staff and operations procedures — Relationship between operations center and users — Operations center procedures — Data sources and media; volume and time considerations — Data retention and retrieval procedures — Reporting methods — Consequences of system failure; recovery procedures — Computer processing time requirements • Development — Specific activities to be conducted by users in support of the development activity — Resources required to develop the data base — Computer processing resources required to develop and test the new system or enhancement.

DATA REQUIREMENTS
(2.1.3 on OSM Documentation Requirements List)

Purpose The Data Requirements document provides a description of and technical information about the data base used by a new system or an enhancement to an existing system. It is used during the analysis stage of a software development project as a starting point in determining how the data base should be structured and how it will be used.

Content The Data Requirements document contains detailed information about data relationships, the system environment, security, data volume considerations, and expected usage patterns.

Figure A–18 summarizes the information required in the Data Requirements by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A–18
TABLE OF CONTENTS FOR DATA REQUIREMENTS
(2.1.3 on OSM Documentation Requirements List)

1. Introduction

    1.1 Background
    1.2 Scope
    1.3 Assumptions and Constraints
    1.4 Summary of the Data Requirements
    1.5 References

2. Logical Data Model

    2.1 Entity Relationships
    2.2 Data Definitions

        2.2.1 Entity Relationships
        2.2.2 Entity Attribute Lists
        2.2.3 Attribute Descriptions
        2.2.4 Other Definitions

3. Environment

4. Data Security Requirements

5. Data Volume and Usage Patterns

Data Requirements

Section	Title	Content
1	Introduction	Provide appropriate background information.
1.1	Background	Provide a brief overview of the new system or enhancement and why it is being implemented.
1.2	Scope	Explain why the Data Requirements document is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Assumptions and Constraints	Describe factors which may impact the accuracy or applicability of the Data Requirements document.
1.4	Summary of the Data Requirements Document	Summarize the most significant information included in the Data Requirements document.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the Data Requirements document. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency, and industry standards and guidance.

Section	Title	Content
2	Logical Data Model	Provide a detailed description of the logical data model.
2.1	Entity Relationships	Include diagrams and/or descriptions which identify logical data groups (entities) and the relationships among the groups (that is, entity-relationship diagrams).
2.2	Data Definitions	Provide a detailed description of the data. Include, or provide reference to, the Data Dictionary.
2.2.1	Entity Definitions	Define and describe the logical data groups.
2.2.2	Entity Attribute Lists	List the attributes (data elements) associated with each entity or logical data group. For each entity, identify candidate keys and the relationship of the attribute to the entity (for example, each Permit entity has one and only one Permit Number; each Violation entity has zero or one Abatement-Date attribute).
2.2.3	Attribute Descriptions	Describe each attribute and identify characteristics (type, length, allowable range, critical values, scale of measurement, conversion factors).
2.2.4	Other Definitions	Depending upon the methodology used, other definitions may be required; for example, data flow definitions, report definitions, input document definitions, data store definitions, and business function/entity relationships.

Section	Title	Content
3	Environment	Describe the operating environment of data base, if known. Include any pertinent information that may affect the operating environment; for example, hardware, software, data collection procedures, timing for required reports, backup requirements, etc.

Section	Title	Content
4	Data Security Requirements	Identify security and privacy requirements. Highlight any vulnerabilities or other considerations and identify particularly sensitive information and required Privacy Act precautions.

Section	Title	Content
5	Data Volume and Usage Patterns	Provide data volume estimates and associated backup volume estimates (both assumptions and calculations). Identify transaction frequencies and data update authorities.

UNIT TEST PLAN
(2.3.1.1 on OSM Documentation Requirements List)

Purpose

Unit, or module, testing is the process of testing the individual subroutines, routines, or procedures that make up a larger program. It is aimed at the smallest component of the software product so that a "building block" approach can be used in developing a new system or an enhancement to an existing system.

Because it occurs first in the overall process of testing, unit testing is critical in terms of detecting errors. When designing test cases for a unit test, the specification for the module, which describes its input and output parameters and its processing logic, must be taken into consideration. It is also necessary to have the source code.

Unit testing is centered on techniques that will uncover errors in the program's logic. This testing quickly becomes more difficult as the size of the test increases; therefore, unit testing provides the best opportunity to focus on the program's internal validity and efficiency.

The Unit Test Plan must be reviewed and approved before the actual testing can begin.

Content

Because the development of each system is unique, the outline of the Unit Test Plan should be customized to reflect the components of the specific entities being tested. It should contain detailed testing procedures for each unit or module, as well as a proposed schedule for each test. Each test plan should contain as Section 1 an overview that provides background information, the scope of the plan, any assumptions or constraints that affected test plan development, a brief summary of the proposed testing, and applicable references.

INTEGRATION TEST PLAN
(2.3.1.2 on OSM Documentation Requirements List)

Purpose

The purpose of integration testing is to ensure that all related units or modules in a new system or an enhancement to an existing system work together as specified in development plans. Testing in this area is aimed at data compatibility, module interface problems, and functional performance requirements. Its scope includes all programs that comprise a discrete function within the new system or enhancement. Normally, integration testing is conducted in an incremented manner.

Content

The Integration Test Plan expands upon the Unit Test Plan in defining testing procedures for the system. Because the development of each system is unique, its outline should be customized to reflect the components of the specific entities being tested. It should contain detailed testing procedures for each unit or module, as well as a proposed schedule for each test. Each test plan should contain as Section 1 an overview that provides background information, the scope of the plan, any assumptions or constraints that affected test plan development, an explanation of how the integration testing builds on the unit testing, a brief summary of the proposed testing, and applicable references.

SYSTEM TEST PLAN
(2.3.1.3 on OSM Documentation Requirements List)

Purpose — The System Test is actually a final integration test, ensuring that a new system or an enhancement to an existing system meets the requirements stated at the beginning of the development process. It will prove that all of the components of the new system or enhancement work together and work properly, and it provides a way to evaluate system performance and documentation and to ensure that both are up to standard.

Content — The System Test Plan describes a methodology for ensuring that the system is incrementally tested and that the tests to be conducted will completely exercise all system functions against all stated requirements. It alerts managers to the test schedule as well as staff time and other resources the test will require, provides detailed descriptions and procedures for each test, provides evaluation criteria, and describes how results will be recorded. When the plan is implemented, the recorded results should be documented in working papers.

Figure A–19 summarizes the information required in the System Test Plan by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A-19
TABLE OF CONTENTS FOR SYSTEM TEST PLAN
(2.3.1.3 on OSM Documentation Requirements List)

1. Introduction

    1.1 Background
    1.2 Scope
    1.3 Assumptions and Constraints
    1.4 Summary of the System Test Plan
    1.5 References

2. System Test Requirements

    2.1 Schedule
    2.2 Personnel
    2.3 Training
    2.4 Computer Resources
    2.5 Test Materials
    2.6 Facilities

3. System Test Specifications

    3.1 Scope of Testing
    3.2 Performance Requirements
    3.3 Tests To Be Conducted
    3.4 Methodology
    3.5 Constraints

4. System Test Descriptions

    4.1 Test Package 1

        4.1.1 Objectives
        4.1.2 Description
        4.1.3 Controls

    4.n Test Package n

5. System Test Procedures

    5.1 Test Package 1
    5.n Test Package n

6. Evaluation Criteria

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the system development project and why it is being conducted.
1.2	Scope	Explain why the System Test Plan is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Assumptions and Constraints	Describe any factors that may affect the test requirements, specifications, and plans described in the System Test Plan.
1.4	Summary of the System Test Plan	Provide a brief summary of the most important information in the System Test Plan.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the System Test Plan. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency, and industry standards and guidance.

Section	Title	Content
2	System Test Requirements	Provide system test logistics information and requirements.
2.1	Schedule	Describe each system test milestone. Include the location(s), participating organization(s), and a tentative schedule that includes time to become familiar with the system and for training, test setup, distribution of materials, and so forth.
2.2	Personnel	Identify staff requirements for the system test. Include names or functions and amount of time needed. Describe responsibilities of government and contractor personnel, and those of developer and user personnel. Include special requirements such as multishift operation and key personnel.
2.3	Training	Describe the type of training that will be required before the system test can be conducted. Include personnel and computer or other resources required as well as the names or functions of the training staff and the personnel to be trained.
2.4	Computer Resources	Describe the computer resources that will be needed for the system test. Include terminals, modems, telephone lines, software, and so forth.
2.5	Test Materials	List materials needed for the test; for example, documentation, software (and on what media), test inputs and sample output, test control software, and worksheets.
2.6	Facilities	Describe the location of the system test and any materials (furniture, audiovisual equipment, office supplies, and so forth) needed at that site.

Section	Title	Content
3	System Test Specifications	Provide general information about the system test.
3.1	Scope of Testing	Explain the objectives of the test. List the functional requirements. Describe the software modules and hardware, detailed application functions, system and support software, manual processes, and any other components of the system to be tested.
3.2	Performance Requirements	Describe the expected results of the system test as related to each item to be tested (described in the previous subsection).
3.3	Tests To Be Conducted	Identify the different kinds of tests that will be used; for example, functionality, workload performance, stress performance, and support materials (training, documentation). Other types or different groupings of tests may be appropriate for a specific system. Describe the general order in which the tests will be conducted, the progression from one test to another, which tests depend upon the successful outcome of prior tests, and the procedures for re-testing in the event a test fails.
3.4	Methodology	Describe the general method or strategy of the testing. Describe how development of test packages will be controlled. Describe the methodology for developing the test packages, associated input data, and (if used) the test data base. Specify the type of input to be used (live or test) as well as its volume and frequency. Indicate the extent of the testing and include the rationale for partial testing. Discuss the method to be used for recording test results and other information about the testing, for effecting appropriate system changes determined to be necessary as a result of the testing, and for determining that test results are satisfactory.

Section	Title	Content
3.5	Constraints	Indicate any anticipated limitations on the test that may result from conditions such as interfaces, equipment, personnel, and data.

Section	Title	Content
4	System Test Descriptions	Provide a detailed explanation of the individual tests involved in the system test. Include a separate subsection for each test. For example: 4.1 Test Package 1 4.n Test Package n Include the following information for each test.
4.1.1	Objectives	Describe the objective(s) of the test and its relationship to specific system functions.
4.1.2	Description	Describe the test. Include preparation, input, processing, output, and recording of results.
4.1.3	Controls	Describe the test control (for example, manual, semi-automatic, or automatic).

Section	Title	Content
5	System Test Procedures	Provide step-by-step procedures for conducting each test. Include a separate subsection for each test. For example: 5.1 Test Package 1 5.n Test Package n

Section	Title	Content
6	Evaluation Criteria	Describe the criteria to be used to evaluate the results of the system test. Include information on pass, fail, and restart thresholds. Describe the methods to be used to summarize the results (summary statistics, graphs, charts, and so forth). Describe the procedures that will be used to record the progress and results of the test, to report failure, and to prepare a final test report. Identify the person(s) responsible and the procedures to be followed for approving the test results.

ACCEPTANCE TEST PLAN
(2.3.1.4 on OSM Documentation Requirements List)

Purpose

The Acceptance Test determines whether a new system or an enhancement to an existing system is ready for operational use. It is the final measure of whether the new system or enhancement performs according to the requirements and specifications stated at the beginning of the development process.

Content

The Acceptance Test Plan establishes criteria to use in determining whether the new system or enhancement will be accepted by the user. It defines the nature and scope of the testing activity, identifies the testing methodology, outlines organizational requirements and responsibilities for conducting the test, and addresses recording and evaluation of test results. When the plan is implemented, results should be documented in working papers.

The test methodology identifies specific functions and processes that need to be tested and describes the specific test cases that will be used to thoroughly verify and validate those functions and processes. Depending on the situation, multiple test cases may be required to verify a single function or process, or a single test case can verify multiple functions and processes. To expedite acceptance testing, the test cases are grouped into packages. Each package should contain forms that summarize the test steps and provide space to record results.

Before acceptance testing can be completed, the test results should be compared with predetermined or "expected" results. The expected results for each test case should be determined when the test data is encoded.

Figure A–20 summarizes the information required in the Acceptance Test Plan by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A-20
TABLE OF CONTENTS FOR ACCEPTANCE TEST PLAN
(2.3.1.4 on OSM Documentation Requirements List)

Figure A–20 (Continued)
TABLE OF CONTENTS FOR ACCEPTANCE TEST PLAN
(2.3.1.4 on OSM Documentation Requirements List)

Acceptance Test Plan

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the system development project and why it is being conducted.
1.2	Scope	Explain why the Acceptance Test Plan is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Assumptions and Constraints	Describe any factors that may affect the test requirements, specifications, and plans described in the Acceptance Test Plan.
1.4	Summary of the Acceptance Test Plan	Provide a brief summary of the most important information in the Acceptance Test Plan.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the Acceptance Test Plan. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency, and industry standards and guidance.

Section	Title	Content
2	Acceptance Test Overview	Provide acceptance test background information and requirements.
2.1	System Inputs, Processing, and Outputs	Provide a narrative description of the new system or enhancement to be tested. Include details of information processing, inputs, and outputs.
2.2	Schedule	Describe each acceptance test milestone. Include the location(s), participating organization(s), and a tentative schedule that includes time to become familiar with the system and for training, test setup, distribution of materials, and so forth.
2.3	Requirements	Provide acceptance test logistics information and requirements.
2.3.1	Personnel	Identify staff requirements for the acceptance test. Include names or functions and amount of time needed. Describe responsibilities of government and contractor personnel, and those of developer and user personnel. Include special requirements such as multishift operation and key personnel.
2.3.2	Training	Describe the type of training that will be required before the acceptance test can be conducted. Include personnel and computer or other resources required as well as the names or functions of the training staff and the personnel to be trained.
2.3.3	Computer Resources	Describe the computer resources that will be needed for the acceptance test. Include terminals, modems, telephone lines, software, and so forth.
2.3.4	Test Materials	List materials needed for the test; for example, documentation, software (and on what media), test inputs and sample output, test control software, and worksheets.

Section	Title	Content
2.3.5	Facilities	Describe the location of the acceptance test and any materials (furniture, audiovisual equipment, office supplies, and so forth) needed at that site.

Section	Title	Content
3	Acceptance Test Specifications, Methodology, and Evaluation	Provide general information about the system test.
3.1	Test Specifications	Provide information about the functions, processes, and software to be tested.
3.1.1	Functions To Be Tested	Provide a brief description of the application functions that will be tested and the performance requirements for those functions.
3.1.2	Software To Be Tested	Provide a brief description of the system and/or support software that will be tested.
3.1.3	Manual Processes To Be Tested	Provide a brief description of any manual processes that will be tested.
3.1.4	Tests To Be Conducted	Identify the different kinds of tests that will be used; for example, functionality, workload performance, stress performance, and support materials (training, documentation). Other types or different groupings of tests may be appropriate for a specific system.
3.1.5	Relationship of Tests to Functions	Explain how the tests to be conducted will demonstrate system functions and processes and prove that requirements have been satisfied.
3.1.6	Test Progression	Describe the general order in which the tests will be conducted, the progression from one test to another, which tests depend upon the successful outcome of prior tests, and the procedures for retesting in the event a test fails.
3.2	Test Methodology	Describe the general method or strategy of the testing.

Section	Title	Content
3.2.1	System Control Methods	Describe how development of test packages will be controlled.
3.2.2	Test Data Base Development	Describe how the data base for the test will be developed.
3.2.3	Test Data Development	Describe how the data used in the test will be developed. Specify the type of input to be used (live or test) and its volume and frequency.
3.2.4	Test Execution	Describe the strategy for conducting the test.
3.2.5	Test Conditions	Describe the conditions under which the test will be conducted, and explain how these conditions relate to the actual operating environment of the new system or enhancement.
3.2.6	Constraints	Indicate any anticipated limitations on the test that may result from conditions such as interfaces, equipment, personnel, and data.
3.3	Test Evaluation	Describe how test results will be recorded and evaluated.
3.3.1	Criteria for Evaluation	Describe the criteria to be used to evaluate the results of the acceptance test. Include information on pass, fail, and restart thresholds.
3.3.2	Data Reduction	Describe the methods to be used to summarize the results (summary statistics, graphs, charts, and so forth).
3.3.3	Recording and Reporting	Describe the procedures that will be used to record the progress and results of the test, to report failure, and to prepare a final test report.

Section	Title	Content
3.3.4	Final Release Authority	Identify the person(s) responsible and the procedures to be followed for approving the test results and authorizing final release.

Section	Title	Content
4	Acceptance Test Descriptions	Provide a detailed explanation of the individual tests involved in the acceptance test. Include a separate subsection for each test and relate that test to a specific function. For example: 4.1 Test 1 (Function) 4.n Test n (Function) Include the following information for each test.
4.1.1	Objectives	Describe the objective(s) of the test (that is, what it should accomplish) and its relationship to specific system functions.
4.1.2	Input and Parameters	List the input data, parameters, and test data base records to be used in the test.
4.1.3	Expected Results	Describe the expected results of the test.
4.1.4	Procedures for Execution and Evaluation	Describe the test and the responsibilities of the personnel involved. Discuss preparation, input, processing, and output, as well as recording of results, pass/fail criteria, retesting procedures, and how any system changes determined to be necessary as a result of the testing will be effected. Include forms that summarize the test steps and provide space to record results.
4.1.5	Controls	Describe the test control methods (for example, manual, semi-automatic, or automatic).

SYSTEM/SUBSYSTEM SPECIFICATION
(2.3.3.1 on OSM Documentation Requirements List)

Purpose — The System/Subsystem Specification provides analysts and programmers with information needed to develop application software for a new system or an enhancement to an existing system.

Content — The System/Subsystem Specification describes requirements for software (system, application, and special purpose); the system's operating environment; design considerations such as program logic, users, and facilities; and, if available, specific functions to be satisfied by the program.

Figure A–21 summarizes the information required in the System/Subsystem Specification by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A–21
TABLE OF CONTENTS FOR SYSTEM/SUBSYSTEM SPECIFICATION
(2.3.3.1 on OSM Documentation Requirements List)

System/Subsystem Specification

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the system development project and why it is being conducted.
1.2	Scope	Explain why the System/Subsystem Specification is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Assumptions and Constraints	Describe any factors that may affect the test requirements and specifications described in the System/Subsystem Specification.
1.4	Summary of the System/Subsystem Specification	Provide a brief summary of the most important information in the System/Subsystem Specification.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the System/Subsystem Specification. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency, and industry standards and guidance.

Section	Title	Content
2	Requirements	Describe the system, its functions, and performance requirements.
2.1	System Overview	Provide a general description of the system or subsystem to establish a frame of reference for the remainder of the document: • Summarize the functional requirements the system will satisfy. Emphasize any unique requirements. • Show the general interrelationship of the system's components and provide a general description of their size. • Briefly summarize the system concept of operations, automated procedures, manual procedures, and staffing requirements.
2.2	Functions	Describe system functions in both quantitative and qualitative terms. Explain how the functions satisfy the functional requirements and explain the relationship between functions and applications.
2.3	Performance	List performance requirements in the following subsections: 2.3.1 Accuracy 2.3.2 Validation 2.3.3 Timing 2.3.4 Flexibility Accuracy — Describe mathematical, logical, legal, and transmission requirements. Validation — Describe data validation requirements Timing — Describe timing requirements under various conditions. Include response time, update processing time, data transfer and transmission time, and throughput time.

Section	Title	Content
		Flexibility — Describe the capability for adapting the system to changes in requirements; for example, changes in modes of operation, operating environment, interfaces with other software, accuracy and validation timing, and planned changes or improvements. Identify the system/subsystem components that are specifically designed to provide this flexibility.

Section	Title	Content
3	Operating Environment	Describe the planned logical and physical configuration of equipment, support software, and interfaces. Discuss security and privacy and operational controls.
3.1	Equipment	Identify the equipment required for operation of the system. Point out new equipment and relate it to specific functional requirements. Include information such as: • Processor and size of internal storage • Online and offline storage (media, form, and devices) • Online and offline input/output devices • Data transmission devices • Miscellaneous equipment
3.2	Support Software	Identify the support software (operating system, software utilities, etc.) and any test software. If the operation of the system depends on changes to support software, identify the nature of these changes and the proposed implementation schedule.
3.3	Interfaces	Describe interfaces with other software and/or systems.
3.4	Security and Privacy	Describe the overall security and privacy requirements imposed on the system.
3.5	Controls	Describe the operational controls imposed on the system. Identify the sources of these controls.

Section	Title	Content
4	Design Characteristics	Describe the system's logic and operating characteristics.
4.1	Operations	Describe the operating characteristics of the user workstations and computer operations centers where the system will be operational.
4.2	Logic	Describe the logical flow of the entire system. Include a flow chart supplemented by text. The flow should provide an integrated presentation of the system's dynamics, of entrances and exits, computer programs, support software, controls, and data flow.

Section	Title	Content
5	Program Specifications	Describe the system functions to be satisfied by computer programs. Include a separate subsection for each program. For example: 5.1 Program 1 (Name) 5.n Program n (Name) Include descriptions of requirements that the program must meet, the program's operating environment, and the program's design characteristics (inputs, program logic, outputs, and data base).

DATA BASE SPECIFICATION
(2.3.3.2 on OSM Documentation Requirements List)

Purpose — The Data Base Specification provides the detailed design approach for the data base that supports a new system or an enhancement to an existing system. It identifies and defines relationships among file in the data base and, if it has not already been established, identifies the proposed data base support software.

Content — The Data Base Specification contains a detailed description of the data base and its file structure. The format of this information will depend on the language of the data base management system being used.

Figure A–22 summarizes the information required in the Data Base Specification by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A-22
TABLE OF CONTENTS FOR DATA BASE SPECIFICATION
(2.3.3.2 on OSM Documentation Requirements List)

1. Introduction

    1.1 Background
    1.2 Scope
    1.3 Assumptions and Constraints
    1.4 Summary of the Data Base Specification
    1.5 References

2. Data Base Description

    2.1 Identification
    2.2 Using Software
    2.3 Conventions
    2.4 Special Instructions
    2.5 Support Software

3. Data Base Logical Organization

4. Data Base Physical Organization

    4.1 Storage
    4.2 Access
    4.3 Design Considerations

Data Base Specification

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the system development project and why it is being conducted.
1.2	Scope	Explain why the Data Base Specification is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Assumptions and Constraints	Describe any factors that may affect the program characteristics described in the Data Base Specification.
1.4	Summary of the Data Base Specification	Provide a brief summary of the most important information in the Data Base Specification.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the Data Base Specification. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency, and industry standards and guidance.

Section	Title	Content
2	Data Base Description	Provide basic information about the data base and its operating environment.
2.1	Identification	Specify the code name, tag, or label along with any other identification. Identify data bases designated for experimental, test, or temporary use and provide the timeframes in which they will be used.
2.2	Using Software	Identify all software that will use or access the data base. Provide the software name, code name, and any release or version number.
2.3	Conventions	Describe all labeling or tagging conventions that data base developers may need in order to use the data base specification.
2.4	Special Instructions	Provide any special instructions that data base developers or those testing or using the data base may need; for example, criteria, procedures, and formats for submitting data for entry into the data base, identification of data control organization, and entering data into the data base. Where these instructions are extensive, reference appropriate sections of other documents.
2.5	Support Software	Provide brief descriptions of all support software directly related to the data base (for example, data base management, storage allocation, data base loading, file processing, and other generating, modifying, or updating software). Descriptions should include name, function, major operating characteristics, and machine run instructions. Reference all applicable support software documentation.

Section	Title	Content
3	Data Base Logical Organization	Present the detailed specifications for the data base. Include diagrams and the Data Dictionary (or reference the Data Dictionary) describing the physical structure of the data. This should include definitions, characteristics, relationships, keys, access methods, and security. The precise information included will depend on the data base management system and data definition language used. For example: • Hierarchical — Schemas will describe fields, segments, data base records, and data bases • Network — Schemas will describe data items, records, sets, and subschemas (user views) • Relational — Schemas will describe attributes, domains, relations, and views. Depending on the data base management system, a number of facilities or utilities may be used to define data organization, access, and control. Supporting documentation regarding the use and contents of these utilities should also be included.

Section	Title	Content
4	Physical Characteristics	Describe the physical design of the data base.
4.1	Storage	Specify storage requirements for the data base. Include the following: Internal — Describe and illustrate areas set aside for data, including indexing and working areas. Include equipment constraints and design considerations that affect the use of internal storage. Device — List by device type all peripheral storage required for the data base. Include any constraints imposed on storage requirements by each storage device, as well as requirements for permanent data storage and temporary data storage (including overlays). Offline — Describe the form, media, and storage requirements for all offline data storage.
4.2	Access	Describe the access method and specify the physical relationships of access (index, device, area). Describe all physical access security mechanisms (encryption, for example).
4.3	Design Considerations	List design considerations as they relate to handling this data base (for example, blocking factors). Emphasize those physical relationships important to efficient use of the data base.

PROGRAM SPECIFICATION
(2.3.3.4 on OSM Documentation Requirements List)

Purpose

The Program Specification provides programmers with basic information needed to develop a new system or an enhancement to an existing system. It describes the programs that must be developed, as well as the software products that have been or will be acquired, in sufficient detail to allow the development of code to begin.

Content

The Program Specification explains the requirements, operational environment, and design characteristics for each program in the new system or enhancement. It provides details on data flow, interfaces, input, processing, and output.

Documentation for software products that have been acquired must be at a level that allows system testing and use in an operational environment. While it is not possible to define an exact format for such documentation, these minimum standards must be observed.

Figure A–23 summarizes the information required in the Program Specification by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A-23
TABLE OF CONTENTS FOR PROGRAM SPECIFICATION
(2.3.3.4 on OSM Documentation Requirements List)

1. Introduction

    1.1 Background
    1.2 Scope
    1.3 Assumptions and Constraints
    1.4 Summary of the Program Specification
    1.5 References

2. Application Overview

    2.1 Description
    2.2 Operating Environment

        2.2.1 Equipment
        2.2.2 Support Software
        2.2.3 External Interfaces
        2.2.4 Storage
        2.2.5 Security and Privacy
        2.2.6 Controls

    2.3 Flow
    2.4 List of Programs
    2.5 Program Interfaces

3. Program Characteristics

    3.1 Program 1

        3.1.1 Overview

            3.1.1.1 Description
            3.1.1.2 Flow
            3.1.1.3 Modules
            3.1.1.4 Interfaces
            3.1.1.5 Special Requirements

        3.1.2 Detailed Specification

            3.1.2.1 Program Module Detail
            3.1.2.2 Inputs/Outputs
            3.1.2.3 Performance Requirements

    3.n Program n

Program Specification

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the system development project and why it is being conducted.
1.2	Scope	Explain why the Program Specification is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Assumptions and Constraints	Describe any factors that may affect the program characteristics described in the Program Specification.
1.4	Summary of the Program Specification	Provide a brief summary of the most important information in the Program Specification.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the Program Specification. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency, and industry standards and guidance.

Section	Title	Content
2	Application Overview	Describe the new system or enhancement. This section provides a frame of reference for the remainder of the document.
2.1	Description	Explain the purpose of the new system or enhancement. Include a summary description of the system/subsystem functions it has been designed to perform, or show its relationship to other programs that satisfy specific functions.
2.2	Operating Environment	Provide brief descriptions of the various components of the operating environment of the new system or enhancement.
2.2.1	Equipment	Identify the equipment required to operate the program. Include at a minimum the following: • Processor and amount of internal storage • Online and offline storage, including media, format, and devices • Online and offline input and output devices, including capacities • Data transmission devices.
2.2.2	Support Software	Identify the support software and describe any test programs. If the operation of the program depends on changes to the support software, identify the nature of these changes and when they will be implemented.
2.2.3	External Interfaces	Describe all interactions with other systems or software, including sequence or procedure relationships and data interfaces.

Section	Title	Content
2.2.4	Storage	Identify storage requirements, constraints, and conditions. Describe internal storage, including indexing and working areas; device storage (all peripheral storage, permanent and temporary, including overlays); and offline storage, including format and media.
2.2.5	Security and Privacy	Describe security and privacy considerations for the program, including input, output, and data bases.
2.2.6	Controls	Describe program controls such as record counts, accumulated counts, and batch controls. Identify the sources of these controls.
2.3	Flow	Provide a brief summary of the logical flow of information in the new system or enhancement. Include flow charts as appropriate.
2.4	List of Programs	Identify all of the programs used in the new system or enhancement and provide a brief description of their purpose.
2.5	Program Interfaces	Provide a brief description of how the programs interact with one another and with other systems and programs.

Section	Title	Content
3	Program Characteristics	Provide detailed information about each program in the new system or enhancement. Include a separate subsection for each program. For example: 3.1 Program 1 3.n Program n Include at a minimum the following information for each program.
3.1.1	Overview	Provide a high-level overview of the program and its functional components (that is, modules). Include the following information.
3.1.1.1	Description	Describe in detail the processing activities to be accomplished by the program as well as operating procedures. Describe loading, start, stop, recovery, and restart. Include any special program functions or requirements needed for implementation.
3.1.1.2	Flow	Provide a detailed program flow chart depicting the program flow and processing logic. Supplement the flow chart with text.
3.1.1.3	Modules	Use a table, chart, or list to show each program module by name.
3.1.1.4	Interfaces	Describe any interfaces between this program and other internal or external programs.
3.1.1.5	Special Requirements	Describe any additional considerations related to the program.
3.1.2	Detailed Specification	Provide detailed specifications for the program and its functional components (modules). Include the following information.

Section	Title	Content
3.1.2.1	Program Module Detail	Identify the complete set of components of the program and their relationships. Use tables and diagrams as appropriate. Include a separate subsection for each module. For example: (a) Module 1 (n) Module n The description of each component should include the following details: • Description • Logic Flow • Function(s) • Data Requirements • Interfaces • Special Requirements
3.1.2.2	Inputs/Outputs	Provide information about the characteristics of the data input to the program. Possibilities include: • Title and tag • Relational data view • Format specifications such as a report format • Validation criteria • Volume and frequency • Means of entry • Source document or specific interface source and its disposition • Access procedures and security mechanisms • Index, device, and area access • Security and privacy considerations.

Section	Title	Content
		Provide information about program output. Possibilities include: • Title and tag • Format specifications such as a report format • Selection criteria for display, output, or transfer • Volume and frequency • Output media • Description of graphic displays and symbols • Security and privacy considerations • Disposition of products • Description of the sequence of displays, display contents, fixed and variable formats, and display of error conditions.
3.1.2.3	Performance Requirements	Specify performance requirements. Include the following: • Accuracy requirements — mathematical, logical, legal, and transmission • Validation requirements • Timing requirements — response time, update processing time, data transfer and transmission time, and throughput and internal processing time • Flexibility — the program's capability to adapt to changes in mode of operation; operating environment; interfaces; accuracy, validation, and timing requirements; and planned changes or improvements.

DATA DICTIONARY
(2.3.3.6 on OSM Documentation Requirements List)

Purpose

The Data Dictionary provides a central repository of information about the key components of applications. It is used by analysts, designers, programmers, and users to ensure a common understanding and use of application components, and also facilitates complete and precise application software and data documentation. The Data Dictionary should meet the following objectives:

- Establish a glossary of terms
- Provide standard terminology
- Define all terms associated with a system or subsystem
- Identify the modules available to a system
- Provide system-wide cross-reference capability
- Resolve problems associated with aliases and acronyms
- Provide centralized control for changes to data elements, programs, files, and reports
- Provide a listing of all data elements and their sources.

Content

The Data Dictionary is a dynamic document which is expanded and revised through system development and maintenance. The content of the Data Dictionary will vary depending upon the life cycle phase. It is used to support data base and file designs, as well as process development. Hence, the development methodology used will dictate the information included in the dictionary. Common to all methodologies is the definition of data elements and their characteristics; however, other components should be defined as appropriate. For example, when the Yourdon methodology is followed, the dictionary should identify data flows and define the associated data elements. Other application components to be defined include report files and other files, data records, and data bases.

The format of the dictionary also may vary, depending on the medium used to develop it. A number of automated tools are available to support data dictionary production, some of them integrated with data base or software design and development, and these tools should be used whenever possible.

Figure A–24 summarizes the information required in the Data Dictionary by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A-24
TABLE OF CONTENTS FOR DATA DICTIONARY
(2.3.3.6 on OSM Documentation Requirements List)

1. Introduction

    1.1 Background
    1.2 Scope
    1.3 Assumptions and Constraints
    1.4 Summary of the Data Dictionary
    1.5 References

2. Data Dictionary

    Name
    Type
    Definition
    Format
    Synonyms
    Source
    Where Used
    Critical Values
    Editing Criteria
    Conversion Factors
    Volumes
    Frequency
    Responsibility
    Calculations
    Controls

Section	Title	Content
1	Introduction	Provide appropriate background information.
1.1	Background	Provide a brief overview of the new system or enhancement and why it is being implemented.
1.2	Scope	Explain why the Data Dictionary is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Assumptions and Constraints	Describe factors which may impact the accuracy or applicability of the Data Dictionary.
1.4	Summary of the Data Dictionary	Summarize the most significant information included in the Data Dictionary. Identify conventions used.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the Data Dictionary. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, and industry standards and guidance.

Section	Title	Content
2	Dictionary Entries	Include the following information for each entry, when appropriate (depending upon the entry type, development methodology, and life-cycle phase).
	Name	Alphanumeric name of the entry as used in the system.
	Type	Type of entry: for example, data element, report file, or data base; required or not required; initial or update.
	Definition	Narrative description of the entry.
	Format	Alphanumeric, numeric, alphabetic; length; decimal places; and other attributes (such as display format, storage format).
	Synonyms	Synonyms and aliases employed by users and in technical documentation.
	Source	Origin of entry, such as outside organization external media (for example, tape from another agency), calculation in program, keyed by operator.
	Where Used	Cross-reference to each report, file, data base, program, online screen, etc., that utilizes the entry. Include indication of how used: input, output, or calculated output (including formula).
	Critical Values	Range, scale, unit of measure, etc.
	Editing Criteria	Valid values, relational and/or consistency edits, reasonableness checks (range).
	Conversion Factors	Algorithm or factor required to convert input for storage and/or to convert stored values for output.

Section	Title	Content
	Volumes	Volume estimate per time period (or other measure).
	Frequency	Update/processing frequency.
	Responsibility	Organization and/or name of contact responsible for input, maintenance, and output.
	Calculations	Algorithm used to calculate value.
	Controls	Controls required for sensitive data.

CONTINGENCY PLAN
(2.3.5 on OSM Documentation Requirements List)

Purpose — The Contingency Plan provides procedures to ensure that interruptions in the normal operations of an ADP site or system are effectively managed and have minimal impact on operations, regardless of their abruptness or magnitude.

Content — The Contingency Plan describes the major risks associated with system operations—those that could result in operational failure—and other catastrophic events. It provides detailed procedures for system backup and for recovery from these situations.

Figure A–25 summarizes the information required in the Contingency Plan by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A-25
TABLE OF CONTENTS FOR CONTINGENCY PLAN
(2.3.5 on OSM Documentation Requirements List)

1. Introduction

    1.1 Background
    1.2 Scope
    1.3 Assumptions and Constraints
    1.4 Summary of the Contingency Plan
    1.5 References

2. Contingencies

    2.1 Events Included
    2.2 Events Excluded
    2.3 Priorities
    2.4 Support Commitments

3. Responsibilities

    3.1 Plan Preparation and Maintenance
    3.2 Emergency Chain of Command
    3.3 Operations Supervisor(s)
    3.4 Shift Supervisor(s)

4. Response Strategies

    4.1 Emergency Procedures
    4.2 Continuity of Operations
    4.3 Recovery Procedures

5. Resources

    5.1 Staff
    5.2 Inventory
    5.3 Procurement
    5.4 Facilities
    5.5 Transportation
    5.6 Communications
    5.7 Other

6. Action Plans

    6.1 Contingency 1
    6.n Contingency n

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the system development project and why it is being conducted.
1.2	Scope	Explain why the Contingency Plan is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Assumptions and Constraints	Describe any factors that may affect the contingencies, responsibilities, strategies, resource requirements, and action plans described in the Contingency Plan.
1.4	Summary of the Contingency Plan	Provide a brief summary of the most important information in the Contingency Plan.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the Contingency Plan. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency, and industry standards and guidance.

Section	Title	Content
2	Contingencies	Determine the situations for which contingency plans should be developed and the organization's priorities and commitments in the event that one of those situations occur. Contingencies should be identified through a rigorous risk analysis exercise which should be described in this section.
2.1	Events Included	Describe each situation for which a contingency plan will be developed. Explain why each was selected.
2.2	Events Excluded	Describe each situation that was not included in the contingency plan and explain why it was not included.
2.3	Priorities	Describe the organization's priorities should any of the situations described above occur.
2.4	Support Commitments	Describe the organization's commitments to support its own goals or other organizations should any of the situations described above occur.

Section	Title	Content
3	Responsibilities	Identify key management and staff personnel and define their roles and responsibilities should any of the situations described above occur. Include at a minimum the personnel listed below.
3.1	Plan Preparation and Maintenance	Those responsible for preparing and maintaining this Contingency Plan.
3.2	Emergency Chain of Command	Those responsible for the organization's activities.
3.3	Operations Supervisor(s)	Person(s) responsible for ADP equipment and software.
3.4	Shift Supervisor(s)	Person(s) responsible for day-to-day operations of ADP equipment and software.

Section	Title	Content
4	Response Strategies	Determine a preferred strategy for the way contingencies will be handled at the site or activity. The strategy should be based on an evaluation of options for response to the emergency itself, providing continuity of operations after an emergency, and resuming normal operations. The preferred strategy should be approved by management.
4.1	Emergency Procedures	Describe the strategy for responding to an emergency. Include at a minimum the following: • Initial notification • Evacuation procedures • Activating the emergency response center • Damage assessment • Securing the computer center • Notifying vendors • Notifying users
4.2	Continuity of Operations	Describe the strategy for establishing backup operations. Include at a minimum the following: • Notifying the backup site • Transportation to the backup site (personnel, tapes, documentation, etc.) • Establishing a production schedule
4.3	Recovery Procedures	Describe the strategy for resuming normal operations. Include at a minimum the following: • Preliminary planning • Site selection criteria • Facility planning • Selecting/procuring hardware • Salvaging equipment • Restoring utilities • Restoring communications • Procuring supplies • Activating the recovery site and closing the backup site

Section	Title	Content
5	Resources	To be prepared in the event of a contingency, develop a directory of personnel, an inventory of critical resources, and a listing of other procedures and requirements. This section at a minimum should contain the information below. It should be updated as necessary.
5.1	Staff	Include a complete list of assigned personnel, including address, phone number, and other desired information. Include rosters of those to be notified in the event of an emergency. Assign members to and include rosters for recovery teams.
5.2	Inventory	Include all critical items, including at a minimum the following: Data — Onsite inventory, offsite inventory, and critical files needed for processing at the backup site. Describe how and when these files are updated. Software — System software and applications software. Include onsite and offsite inventory and how and when updates take place. Hardware — List should include vendor's name, address, etc. Include emergency acquisition agreement(s), sample order forms, documentation, etc. Supplies — List should include critical supply items and information such as part number and vendor. Provide a list of supplies needed for processing at the backup site and their location. Documentation — Include onsite and offsite inventory and how and when updates take place. Provide a list, including location, of documentation needed for processing at the backup site.

Section	Title	Content
5.3	Procurement	Include lists of suppliers, order forms, emergency acquisition agreements, and other agreements.
5.4	Facilities	Include current site requirements and the layout of the facility, backup space available (by site), power requirements, and any other facility/environment requirements at the current site or backup site(s).
5.5	Transportation	Include current transportation needs and transportation required to implement backup and recovery operations. Consider added requirements due to emergency conditions and include procedures for obtaining emergency transportation.
5.6	Communications	Include current communications needs and communications requirements at backup site(s).
5.7	Other	Include any other issues that should be addressed, including alternate site agreements, vendor performance, liability, contracts, and so forth.

Section	Title	Content
6	Action Plans	For each contingency identified in Section 2, provide a step-by-step plan for response, backup, and recovery. Include the person(s) responsible for implementing the procedure, how it should be implemented, how operations will be monitored, and how operations will return to normal. Include a separate subsection for each contingency. For example: 6.1 Contingency 1 6.n Contingency n

CONVERSION PLAN
(2.4.3 on OSM Documentation Requirements List)

Purpose — The Conversion Plan outlines the schedule and strategy for implementing a new system or an enhancement to an existing system. Implementation usually involves one-time activities that include data base conversion, parallel operations, user training, and organizational restructuring.

Content — The Conversion Plan describes all required tasks necessary to accomplish the transition to the new system or enhancement. It contains procedures for

- Collecting and converting data and files, including purging the data and files of obsolete information
- Developing and testing computer programs to support data and file conversion
- Developing the sequence of events and schedule for the phased implementation of new data bases and data processing procedures
- Defining any necessary organizational realignment, including activities and a schedule for implementing those changes
- Defining training required for conversion activities
- Developing any special forms, procedures, or controls required for the conversion.

Figure A–26 summarizes the information required in the Conversion Plan by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A-26
TABLE OF CONTENTS FOR CONVERSION PLAN
(2.4.3 on OSM Documentation Requirements List)

1. Overview

    1.1 Background
    1.2 Scope
    1.3 Assumptions and Constraints
    1.4 Summary of the Conversion Plan
    1.5 References

2. Current Environment

    2.1 Current System Inventory

        2.1.1 Hardware
        2.1.2 System Software
        2.1.3 Applications Software
        2.1.4 Files and Data Bases
        2.1.5 Overall System Complexities
        2.1.6 Security/Privacy Requirements
        2.1.7 Documentation
        2.1.8 Manual Procedures

    2.2 Operating Environment

        2.2.1 Facilities
        2.2.2 Processing Modes
        2.2.3 Agency Conventions and Standards
        2.2.4 Communications
        2.2.5 Personnel

3. New Environment

    3.1 System

        3.1.1 Hardware
        3.1.2 System Software
        3.1.3 Applications Software
        3.1.4 Files and Data Bases
        3.1.5 Overall System Complexities
        3.1.6 Security/Privacy Requirements
        3.1.7 Documentation
        3.1.8 Manual Procedures

Figure A-26 (Continued)
TABLE OF CONTENTS FOR CONVERSION PLAN
(2.4.3 on OSM Documentation Requirements List)

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the new system or enhancement and why the project was undertaken.
1.2	Scope	Explain why the Conversion Plan is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Assumptions and Constraints	Describe any factors that may affect the activities described in the Conversion Plan. Discuss any problems associated with converting the current system to the new system or enhancement.
1.4	Summary of the Conversion Plan	Provide a brief summary of the most important information in the Conversion Plan.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the Conversion Plan. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency, and industry standards and guidance.

Section	Title	Content
2	Current Environment	Describe the existing hardware, software, and operating environment.
2.1	Current System Inventory	Provide brief summaries and the status of the existing system in the following subsections: 2.1.1 Hardware 2.1.2 System Software 2.1.3 Applications Software 2.1.4 Files and Data Bases 2.1.5 Overall System Complexities 2.1.6 Security/Privacy Requirements 2.1.7 Documentation 2.1.8 Manual Procedures
2.2	Operating Environment	Provide brief summaries of the current operating environment in the following subsections: 2.2.1 Facilities 2.2.2 Processing Modes (batch, timesharing, etc.) 2.2.3 OSM Conventions and Standards 2.2.4 Communication Modes 2.2.5 Personnel

Section	Title	Content
3	New Environment	Describe the hardware, software, and operating environment required for the new system or enhancement.
3.1	System	Provide brief summaries of hardware and software requirements in the following subsections: 3.1.1 Hardware 3.1.2 System Software 3.1.3 Applications Software 3.1.4 Files and Data Bases 3.1.5 Overall System Complexities 3.1.6 Security/Privacy Requirements 3.1.7 Documentation 3.1.8 Manual Procedures
3.2	Operating Environment	Provide brief summaries of the proposed operating environment in the following subsections: 3.2.1 Facilities 3.2.2 Processing Modes (batch, timesharing, etc.) 3.2.3 OSM Conventions and Standards 3.2.4 Communication Modes 3.2.5 Personnel

Section	Title	Content
4	Conversion Activities	Provide a detailed description of the conversion effort.
4.1	Methodology	Describe the specific methodology to be used in the conversion process (for example, parallel conversion, cutover, or phased implementation). Relate that methodology to the conversion effort proposed.
4.2	Task Plan	Provide a detailed conversion task description for each component of the new system or enhancement that will be implemented. Include the purpose of the task, how the task will be accomplished, resources required, and expected results.
4.3	Schedule	Using the target completion date as a fixed milestone, schedule each of the tasks described in the previous section in terms of dependencies and known constraints. The schedule should be updated as resource levels are determined.
4.4	Interim/Fallback Operating Capability	Describe any temporary processing procedures that may be required during the conversion. Describe procedures to cover all reasonable contingencies that could occur during the conversion.

USER TRAINING PLAN
(2.4.4 on OSM Documentation Requirements List)

Purpose — The User Training Plan outlines requirements for instructing management, operations, and clerical personnel in the use of a new system or an enhancement to an existing system. It identifies those who will receive the training, the materials to be used, the staff who will conduct the training, curriculum development activities, and the training schedule. Each of these components must be comprehensively designed and carefully implemented if the training effort is to be a success. The plan also alerts management as to the impact of the training program on system implementation and operation as well as day-to-day activities.

Content — The User Training Plan provides detailed information on users to be trained, materials to be used in the training, the staff who will conduct the training, the curriculum (both content and development), and the training schedule, including its impact on normal operations. It includes details on training facility and resource requirements and organizational responsibilities.

The final User Training Plan includes the complete course curriculum, all materials, including teaching guides and class handouts, and the evaluation report.

Figure A–27 summarizes the information required in the User Training Plan by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A–27
TABLE OF CONTENTS FOR USER TRAINING PLAN
(2.4.4 on OSM Documentation Requirements List)

1. Introduction

    1.1 Background
    1.2 Scope
    1.3 Assumptions and Constraints
    1.4 Summary of Training Activities
    1.5 References

2. Training Requirements

    2.1 Schedule
    2.2 Computer Resources
    2.3 Training Materials
    2.4 Facilities

3. Training Responsibilities

    3.1 Development of Training
    3.2 Conducting Training
    3.3 Attending Training
    3.4 Evaluation of Training

4. Resource Requirements

    4.1 Development of Training
    4.2 Conducting Training

5. Training Curriculum

    5.1 Course 1

        5.1.1 Objective
        5.1.2 Prerequisites
        5.1.3 Curriculum
        5.1.4 Details
        5.1.5 Materials

6. Evaluation of Training

    6.1 Ways to Obtain Feedback
    6.2 Evaluation of Training
    6.3 Evaluation Report

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the system development project and why it is being conducted.
1.2	Scope	Explain why the User Training Plan is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Assumptions and Constraints	Describe any factors that may affect the training requirements, responsibilities, and plans described in the User Training Plan.
1.4	Summary of Training Activities	Provide an overview of the training required to install, implement, operate and maintain the new system or enhancement. Identify specific courses.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the User Training Plan. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency, and industry standards and guidance.

Section	Title	Content
2	Training Requirements	Provide training logistics information and requirements, including their impact on normal operations.
2.1	Schedule	Describe each training milestone, including course development activities. Include the location(s), participating organization(s), and a tentative schedule for each course.
2.2	Computer Resources	Describe the computer resources that will be needed for the training. Include terminals, modems, telephone lines, software, and so forth.
2.3	Training Materials	List materials needed for the training; for example, documentation, software (and on what media), video cassettes, example input and output.
2.4	Facilities	Describe the location of the training and any materials (furniture, audiovisual equipment, office supplies, and so forth) needed at that site.

Section	Title	Content
3	Training Responsibilities	Identify staff requirements for the training. Include names or functions and the amount of time that will be needed, plus the impact on normal operations. Discuss responsibilities of government and contractor personnel, and those of developer and user personnel. Include special requirements as necessary.
3.1	Development of Training	Identify staff responsibilities for development of the training curriculum.
3.2	Conducting Training	Identify staff responsibilities for conducting the training sessions.
3.3	Attending Training	Identify the staff members who will attend the training sessions.
3.4	Evaluation of Training	Identify the staff members who will evaluate the training sessions.

Section	Title	Content
4	Resource Requirements	Describe resources needed for the training sessions. Include staff and equipment.
4.1	Development of Training	Identify the resources needed to develop the training curricula.
4.2	Conducting Training	Identify the resources needed to conduct the training sessions.

Section	Title	Content
5	Training Curriculum	Provide a detailed description of and outline for each training session. Include a separate subsection for each course. For example: 5.1 Course 1 5.n Course n Include at a minimum the following information.
5.1.1	Objective	Describe the objective(s) of the course.
5.1.2	Prerequisites	Identify the knowledge base required for the course.
5.1.3	Curriculum	Describe each course and the media or materials needed to present it. Include a course outline.
5.1.4	Details	Provide information on characteristics of the course, including the number of instruction hours, maximum and minimum number of students, the type of training (for example, formal classroom, hands-on, self-study), the type of instruction (for example, lecture, video, demonstration), and qualifications of the instructor(s).
5.1.5	Materials	List specific materials necessary for the course (for example, publications, reference materials, films).

Section	Title	Content
6	Evaluation of Training	Describe training evaluation methods and responsibilities.
6.1	Ways to Obtain Feedback	Present specific descriptions of training-related feedback methodologies to be employed.
6.2	Evaluation of Training	Describe the evaluation forms that will be employed and the units of measure that will be used to evaluate the training feedback.
6.3	Evaluation Report	Describe the formal evaluation report that will be included in the final User Training Plan at the conclusion of the training activity. Include a summary analysis of evaluation forms completed during each training session.

PROGRAM MAINTENANCE MANUAL
(2.4.6 on OSM Documentation Requirements List)

Purpose — The Program Maintenance Manual is used by analysts and programmers who are maintaining or developing improvements to a new system or an enhancement to an existing system. It provides the information they need to understand the coded programs, the system's operating environment, and maintenance procedures.

Content — The Program Maintenance Manual contains detailed descriptions of programs and their operating environments. It explains maintenance procedures and, in an appendix, includes all program source code.

Figure A–28 summarizes the information required in the Program Maintenance Manual by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A–28
TABLE OF CONTENTS FOR PROGRAM MAINTENANCE MANUAL
(2.4.6 on OSM Documentation Requirements List)

1. Introduction

    1.1 Background
    1.2 Scope
    1.3 Assumptions and Constraints
    1.4 Summary of the Program Maintenance Manual
    1.5 References

2. Operating Environment

    2.1 Hardware
    2.2 Support Software

        2.2.1 Operating System
        2.2.2 Compiler/Assembler
        2.2.3 Other Software

    2.3 Data Base

3. Description of Programs

    3.1 Program 1

        3.1.1 Description
        3.1.2 Input
        3.1.3 Processing
        3.1.4 Output
        3.1.5 Interfaces
        3.1.6 Tables
        3.1.7 Run Description
        3.1.8 Source Code

    3.n Program n

4. Program Maintenance

    4.1 Programming Conventions
    4.2 Verification Procedures
    4.3 Error Correction Procedures
    4.4 Special Maintenance Procedures
    4.5 Listings and Structure Charts

Appendix A—Source Code

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the new system or enhancement and why it is being implemented.
1.2	Scope	Explain why the Program Maintenance Manual is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the manual or excluded from consideration.
1.3	Assumptions and Constraints	Describe any factors that may affect the applicability of the procedures described in the manual.
1.4	Summary of the Program Maintenance Manual	Provide a brief summary of the most important information in the manual.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the manual. Include vendor-supplied manuals; project documentation; other in-house documentation; and Federal, departmental, agency and industry standards and guidance.

Section	Title	Content
2	Operating Environment	Provide brief descriptions of the various components of the operating environment of the new system or enhancement.
2.1	Hardware	Identify the equipment required to operate the new system or enhancement. Describe any unusual features that are implemented. Relate the hardware to the requirements for each program. Include the following information: • Processor and amount of internal storage • Online and offline storage, including media, form, and devices • Online and offline input and output devices • Data transmission devices.
2.2	Support Software	Identify the support software employed by each program.
2.2.1	Operating System	Identify and describe the operating system, including the version or release number and any unusual features implemented.
2.2.2	Compiler/Assembler	Identify and describe the compiler/assembler, including the version or release number and any unusual features implemented.
2.2.3	Other Software	Identify and describe any other software used (for example, data management systems, report generators, and so forth).
2.3	Data Base	Describe the data base, including file/record layouts, codes, units of measurement, format, and range of values. Reference the Data Dictionary for more complete information.

Section	Title	Content
3	Description of Programs	Describe each program used by the new system or enhancement from the maintenance programmer's perspective. If describing a complex system, group the programs by application, describe the application, and relate each program and its function to the application. Use tables and matrices as needed to indicate cross-references and relationships. Include separate subsections for each program or group of programs. For example: 3.1 Program 1 3.n Program n Include at a minimum the following information for each program or group of programs.
3.1.1	Description	Identify the program by title, tag or label, and programming language. Identify all modules in the program and indicate the relationships among them. Describe the problems to be solved or the functions to be executed by the program and how the solution or execution is accomplished.
3.1.2	Input	Describe the data input to the program and provide a layout. Include information such as media, codes, units of measurement, format, and range of values. Provide cross-references to the Data Dictionary and Data Base Specification.
3.1.3	Processing	Describe processing characteristics relevant to the maintenance programmer. For example: • Processing logic • Linkages • Variables and constants • Formulas • Error handling • Restrictions and limitations • Locations, settings, internal switches, and flags • Shared storage.

Section	Title	Content
3.1.4	Output	Describe the output of the program and provide a layout. Identify the media used and all modules employed. Provide cross-references to the Data Dictionary and Data Base Specification.
3.1.5	Interfaces	Describe interfaces with other software. Include information such as data formats, messages, parameters, conversion requirements, interface procedures, and media.
3.1.6	Tables	Identify each table and its items. Describe the location, purpose, and structure of each.
3.1.7	Run Description	Describe the procedures used to run the program. Include loading, operating, terminating, and error handling.
3.1.8	Source Code	Reference the Source Code in Appendix A.

Section	Title	Content
4	Maintenance Procedures	Describe program maintenance activities. These activities can be grouped into one section or broken out by individual programs or groups of programs, depending on their consistency from program to program. The following information should be included.
4.1	Programming Conventions	Identify and describe the programming conventions used to develop the new system or enhancement.
4.2	Verification Procedures	Describe the procedures used to check the performance of the programs, both in general and following modifications. Include a reference to test data and testing procedures.
4.3	Error Correction Procedures	Describe all error conditions, their causes, and procedures for correction.
4.4	Special Maintenance Procedures	Describe any special procedures required to maintain the programs. Include information such as periodic purges of the data bases, temporary modifications for leap years or century changes, and so forth.
4.5	Listings and Structure Charts	Reference, append, or describe how to obtain copies of program listings and flowcharts.

USER'S MANUAL
(2.4.8 on OSM Documentation Requirements List)

Purpose

The User's Manual explains how to execute the various functions of a new system or an enhancement to an existing system. It may be limited to one application or a series of applications. It serves as a reference document for use in preparing input data and explains how to interpret the results.

Several factors determine whether a User's Manual is required and, if required, how much detail it should contain. The major consideration is the extent of user involvement with the new system or enhancement.

Content

The User's Manual addresses direct user involvement with a new system or an enhancement to an existing system; thus it should be written with a non-technical reader in mind. It explains how to prepare inputs to and interpret outputs from a particular application or series of applications. The manual covers three areas: general information about the system, an overview of the system, and detailed instructions for using the system.

Because the best format for the user's manual depends on the application design as well as the target audience, the outline for the manual can be revised as necessary.

Figure A–29 summarizes the information required in the User's Manual by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A–29
TABLE OF CONTENTS FOR USER'S MANUAL
(2.4.8 on OSM Documentation Requirements List)

1. Introduction

    1.1 Background
    1.2 Scope
    1.3 Assumptions and Constraints
    1.4 Summary of the User's Manual
    1.5 References

2. System Overview

3. Applications

    3.1 Application 1

        3.1.1 Operation
        3.1.2 Equipment
        3.1.3 Structure
        3.1.4 Performance Characteristics
        3.1.5 Inputs, Data Preparation, and Outputs
        3.1.6 Data Base
        3.1.7 Interfaces

    3.n Application n

4. Procedures

    4.1 Application 1

        4.1.1 System Access
        4.1.2 Initiation
        4.1.3 Input
        4.1.4 Output
        4.1.5 Backup
        4.1.6 Error and Recovery
        4.1.7 File Query
        4.1.8 Audits and Controls

    4.n Application n

5. Non-Routine Procedures

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the new system or enhancement and why the project was undertaken.
1.2	Scope	Explain why the User's Manual is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Assumptions and Constraints	Describe any factors that may affect the procedures described in the User's Manual.
1.4	Summary of the User's Manual	Provide a brief summary of the most important information in the User's Manual.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the User's Manual. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency, and industry standards and guidance.

Section	Title	Content
2	System Overview	Discuss when and how the new system or enhancement is used and what advantages it provides to the organization. Identify and briefly describe the hardware and (if applicable) telecommunications systems used by the new system or enhancement. Identify and briefly describe the software used by the new system or enhancement. Provide a diagram showing the inputs, outputs, data files, and sequence of operations. Identify and briefly describe each program executed by the new system or enhancement. Identify each permanent file or data base that is a part of the new system or enhancement.

Section	Title	Content
3	Applications	Describe the applications that make up the new system or enhancement from the functional perspective. Include a separate subsection for each application. For example: 3.1 Application 1 3.n Application n Include the following introductory information: • Purpose • Capabilities • Functions performed • When and how the application is used • Advantages provided to the organization. The remainder of the subsection should contain the following information.
3.1.1	Operation	Show how the application relates to the functions of the organization that provides input to and receives output from the new system or enhancement. Describe security and privacy considerations.
3.1.2	Equipment	Describe equipment related to use of the application.
3.1.3	Structure	Describe the components that make up the application and describe their logical role in the application's operation.
3.1.4	Performance Characteristics	Provide quantitative information on inputs, outputs, response times, processing times, and error rates. Provide qualitative information about flexibility and reliability.
3.1.5	Inputs, Data Preparation, and Outputs	Describe data input to the application, the flow of data through the processing cycle, and the resulting output. Include any applicable relationships among the inputs and outputs.

Section	Title	Content
3.1.6	Data Base	Describe the files in the data base(s) supported, updated, or referenced by the application. Include the reasons why each file is maintained.
3.1.7	Interfaces	Describe any interfaces between this application and other applications, as well as applications to which this application may send data or from which it may receive data.

Section	Title	Content
4	Procedures	Provide the step-by-step procedures required to run each application. Include a separate subsection for each application. For example: 4.1 Application 1 4.n Application n Include at a minimum the following information.
4.1.1	System Access	Describe how to access system resources. Explain security and privacy procedures.
4.1.2	Initiation	Describe how to start the application.
4.1.3	Input	Define the requirements for preparing input data and parameters. The following considerations may apply: • Reasons for input • Frequency of input • Origin of the input data • Media used for the input data • Restrictions such as priority, security, and access limitations • Quality control actions such as checking to see if the data is reasonable, taking action when data appears to be in error, and documenting errors • Retaining or releasing data files that have been input. Describe the input format. Provide the layout forms used in initial preparation of program data and parameters. Explain each entry on the forms. Describe input rules and conventions such as characters per line or per item, labels, sequence, punctuation, allowable and forbidden combinations, optional items, and controls. Provide examples of each complete input form. Include control or header, text, trailer, omissions, and repeats.

Section	Title	Content
4.1.4	Output	Describe requirements related to output. The following considerations may apply: • Use (by whom and for what) • Frequency (daily, weekly, on demand, etc.) • Variations that may be available • Destination (for example, computer area, remote terminal) • Media (print, diskette, screen, etc.) • Quality control actions such as identification, checking for reasonable data, editing, and error correction • Disposition actions (retaining, releasing, distributing, or transmitting, with regard to priority and security). Provide the layout of each type of output. Include the layout forms and explain each entry such as header, body (text, columns, record layouts, etc.), and trailers or summaries. Provide examples of each complete input form. Define each information variable and explain its use. Include its source and characteristics such as conditions under which it appears, range of values, unit of measure, etc.
4.1.5	Backup	Describe any backup procedures that are executed by users.
4.1.6	Error and Recovery	List error codes or conditions generated by the application. Include corrective actions that can be taken by the user. Indicate procedures to be followed to ensure that restart and recovery capability can be used.
4.1.7	File Query	Provide instructions necessary to initiate, prepare, and process data base queries. Describe query capabilities, forms, commands, and control instructions. Reference related materials that provide detailed information such as query capabilities, languages, conventions, and procedures.

Section	Title	Content
4.1.8	Audits and Controls	Describe system audit and control procedures that are executed by users.

Section	Title	Content
5	Non-Routine Procedures	Provide detailed procedures to follow when emergency or non-routine situations occur while the new system or enhancement is operating. Include at a minimum the personnel to contact in such situations.

OPERATIONS MANUAL
(2.4.9 on OSM Documentation Requirements List)

Purpose — The Operations Manual is geared toward the ADP personnel who will actually run a new system or an enhancement to an existing system. It contains information and procedures needed to efficiently operate the system once it enters the operations and maintenance phase of its life cycle.

Content — The Operations Manual describes job setup procedures, production schedules, control procedures, and job output distribution requirements specific to applications. It explains quality-control requirements and procedures such as verification of output, and it defines job streams for on-demand and predetermined processing cycles. Computer equipment, special software, and other processing requirements are specified.

Figure A–30 summarizes the information required in the Operations Manual by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A–30
TABLE OF CONTENTS FOR OPERATIONS MANUAL
(2.4.9 on OSM Documentation Requirements List)

1. Introduction

    1.1 Background
    1.2 Scope
    1.3 Assumptions and Constraints
    1.4 Summary of the Operations Manual
    1.5 References

2. System Overview

    2.1 Hardware
    2.2 Software
    2.3 Programs
    2.4 Files and Data Bases

3. Description of Runs

    3.1 Run Inventory
    3.2 Run Progression
    3.3 Run Descriptions

        3.3.1 Run 1

            3.3.1.1 Control Inputs
            3.3.1.2 Operating Procedures
            3.3.1.3 Input/Output Files
            3.3.1.4 Output Reports
            3.3.1.5 Reproduced Output Reports
            3.3.1.6 Backup Procedures
            3.3.1.7 Restart/Recovery Procedures

        3.3.n Run n

4. Non-Routine Procedures

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the new system or enhancement and why the project was undertaken.
1.2	Scope	Explain why the Operations Manual is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the document or excluded from consideration.
1.3	Assumptions and Constraints	Describe any factors that may affect the procedures described in the Operations Manual.
1.4	Summary of the Operations Manual	Provide a brief summary of the most important information in the Operations Manual.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the Operations Manual. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency, and industry standards and guidance.

Section	Title	Content
2	System Overview	Describe the hardware, software, programs, files, and data bases used by the system.
2.1	Hardware	Identify and briefly describe the hardware and (if applicable) telecommunications systems used by the system. Reference additional documentation as appropriate.
2.2	Software	Identify and briefly describe the software used by the new system or enhancement. Provide a diagram showing the inputs, outputs, data files, and sequence of operations. Runs may be grouped by time cycles, organizational level, or other criteria.
2.3	Programs	Identify and briefly describe each program executed by the new system or enhancement. Include title, number, and mnemonic reference.
2.4	Files and Databases	Identify each file or data base that is referenced, created, or updated by the system. Include the title, mnemonic reference, storage medium, required storage, and other pertinent characteristics such as whether the file or data base is temporary or permanent, index files associated with the file or data base, and so forth.

Section	Title	Content
3	Description of Runs	Describe the functions executed by the system as it processes information.
3.1	Run Inventory	List all runs possible, summarize the purpose of each, and identify schedules. Show the programs that are executed in each run.
3.2	Run Progression	Describe how the runs progress from one to another so that the entire run cycle is completed.
3.3	Run Descriptions	Organize the information on each run into the most useful presentation for the operations center and operations personnel involved. Include a separate subsection for each run. For example: 3.3.1 Run 1 3.3.n Run n Include at a minimum the following information.
3.3.1.1	Control Inputs	List the run stream control statements needed for the run.
3.3.1.2	Operating Procedures	Provide information for the operations center personnel and management. For example: • Run identification • Operating requirements • Initiation method (on request, predetermined cycle, etc.) • Estimated run time and turnaround time • Step-by-step procedures, including operator commands and messages • Procedures to be followed and individuals to be contacted in the event of problems with the run.

Section	Title	Content
3.3.1.3	Input/Output Files	Provide information about files created or updated by the run. For example: • File name or label • Recording media • Retention schedule • Disposition of file.
3.3.1.4	Output Reports	Provide information on each output report or each type of report. For example: • Report identification • Media • Volume of report • Number of copies • Distribution.
3.3.1.5	Reproduced Output Reports	Provide information on output reports that are computer-generated, then reproduced by other means. For example: • Report identification • Reproduction technique • Dimensions of paper or other media • Binding method • Distribution.
3.3.1.6	Backup Procedures	Describe any procedures that may be required to back up the system, programs, files, or data bases.
3.3.1.7	Restart/Recovery Procedures	Describe in detail procedures used to restart the run or recover from a failure.

Section	Title	Content
4	Non-Routine Procedures	Provide any necessary information about emergency or non-routine operations (for example, switching over to a backup system, turning the system over to maintenance programmers). Identify relevant documentation that describes the procedures to be followed under non-standard circumstances.

DATA BASE ADMINISTRATION PROCEDURES MANUAL
(2.4.10 on OSM Documentation Requirements List)

Purpose — The Data Base Administration Procedures Manual provides guidelines and procedures for managing and maintaining system-specific data bases. It is used by personnel at the data processing facility, where it may be kept separate or incorporated into a facility procedures manual that may cover multiple systems with data bases of their own.

Content — The Data Base Administration Procedures Manual contains the organization of data base administration functions; procedures related to data base performance, sizing, security, backup, and recovery; and descriptions of the user's view of the data base with cross-references to more detailed information in the Data Dictionary.

Figure A–31 summarizes the information required in the Data Base Administration Procedures Manual by presenting the document's table of contents. Detailed explanations of the material that each section should contain are then found in the pages that follow.

Figure A-31
TABLE OF CONTENTS FOR
DATA BASE ADMINISTRATION PROCEDURES MANUAL
(2.4.10 on OSM Documentation Requirements List)

Figure A-31 (Continued)
TABLE OF CONTENTS FOR
DATA BASE ADMINISTRATION PROCEDURES MANUAL
(2.4.10 on OSM Documentation Requirements List)

9. Data Base and Record Structure

    9.1 Description
    9.2 Standards and Requirements

Section	Title	Content
1	Introduction	Provide appropriate background and summary information.
1.1	Background	Provide a brief overview of the new system or enhancement and why it is being implemented.
1.2	Scope	Explain why the Database Administration Procedures Manual is needed, provide a brief overview of its organization, and indicate system-related topics that have been included in the manual or excluded from consideration.
1.3	Assumptions and Constraints	Describe any factors that may affect the applicability of the procedures described in the manual.
1.4	Summary of the Data Base Administration Procedures Manual	Provide a brief summary of the most important information in the manual.
1.5	References	List pertinent standards, guidance, documentation, and any other materials used to prepare the manual. Include vendor-supplied materials; project documentation; other in-house documentation; and Federal, departmental, agency and industry standards and guidance.

Section	Title	Content
2	Organizational Environment	Describe the organizational hierarchy for the new system or enhancement. Identify key organizational units and personnel and describe their functions and responsibilities.

Section	Title	Content
3	General Maintenance Procedures	Describe general data base administration and maintenance procedures.
3.1	Design for Enhancements	Identify where the responsibility for data base administration lies in the design, review, and approval of enhancements to the new system.
3.2	Coordination of Changes	Discuss the review and approval process for proposed changes to the data base, the file layout, and the location of files. Discuss the change and configuration management controls. Describe change procedures, including each step in the process and individual and organizational responsibilities at each step.
3.3	Scheduling	Identify the schedules associated with data base maintenance activities.

Section	Title	Content
4	Performance Procedures	Describe procedures for evaluating the performance of the data base and associated procedures for fine-tuning the data base.
4.1	System Utilities	List the inventory of data base management and file management utilities used in the system. Describe their function and under what circumstances or at what regularly scheduled times they are used.
4.2	Problem Tracking and Reporting	Describe problem tracking and reporting procedures. Identify the logs to be kept and the procedures for review and resolution of problems.
4.3	Monitoring and Control	Explain how data base performance will be monitored.
4.4	Space Utilization	Describe the process for analyzing space utilization. Identify associated procedures; for example, running and analyzing data base management system space utilization reports, allocating additional space, and reorganizing the data base. Describe utilities available for this function along with responsibilities, access procedures, and security controls.

Section	Title	Content
5	Sizing Procedures	Describe procedures and responsibilities for capacity planning and estimating requirements for space needed by the application in the future.

Section	Title	Content
6	Security Procedures	Describe procedures for controlling user access and ensuring the integrity of data.
6.1	Controls	Describe the control mechanisms to ensure the integrity of the data base.
6.2	Access	Describe the procedures to prevent unwarranted access to the data base.
6.3	Data Protection	Describe the methods used to protect the data from intentional or accidental misuse.

Section	Title	Content
7	Backup and Recovery	Describe backup and recovery procedures.
7.1	Overview	Provide a summary of the procedures to be followed to back up the data base and to subsequently restore the data following an emergency situation.
7.2	Procedures	Describe the step-by-step recovery process to be followed in backing up and restoring the data base. Backing up should be a routine exercise and covered in the run descriptions. If back-up procedures are included in the Operations Manual, that section can be referenced here as well. Restore/recovery procedures should also be described here, to the extent that they differ from program restart procedures. Where procedures are described, it is important that they are described in detail, for they will serve as instructions to operators and must be precise to ensure proper backup and recovery of the data base.
7.3	Scheduling	Detail the schedule for backup and recovery procedures. Determine the schedule of events to be followed in an emergency situation.
7.4	Problem Logging	Discuss the tracking mechanism for logging problems during the recovery process.

Section	Title	Content
8	Data Dictionary	Describe the Data Dictionary and explain how it relates to data base administration.
8.1	Description	Provide a description of and reference to the Data Dictionary.
8.2	Automated Procedures	Identify the specific software utilized. Define user access and responsibilities and data base administration responsibilities.
8.3	Manual Procedures	Describe the method by which the documentation is maintained manually. Describe user or system developer requirements and responsibilities as well as data base administration responsibilities.

Section	Title	Content
9	Data Base and Record Structure	Describe the data base and file structures.
9.1	Description	Provide an overview of the data base structure. Reference appropriate data base specification documents.
9.2	Standards and Requirements	Describe the design structure and related requirements. Include any supplementary information that will help data base technicians understand the structure and relationship of data bases and files and will make structure modification.

Appendix B.

CUMULATIVE LIST OF REFERENCES

Appendix B
CUMULATIVE LIST OF REFERENCES

Department of the Interior

Department of the Interior Departmental Manual. All current parts of the Department of the Interior Departmental manual are hereby incorporated into this manual as OSM policy. Individual parts specifically referenced herein are:

Part 110 DM 10, Organization of the Office of IRM. June 1981.

Part 306 DM 2, ADP Standards Handbook.

Part 375 DM 1, IRM Program Management—Program Definition, Goals, Responsibilities. December 1982.

Part 375 DM 2, Information Systems Management—IRM Policy and Program Coordination.

Part 375 DM 4, IRM Program Management—IRM Strategic Planning.

Part 375 DM 5, IRM Program Management—IRM Assessment Program.

Part 375 DM 7, IRM Program Management—Economic Analysis in Support of IRM Decision Making.

Part 375 DM 12, IRM Program Management—Information Resources Standards Program.

Part 375 DM 19, IRM Program Management—Information Resources Security Program.

Part 376 DM 4, Information Resources Management—ADP Acquisition. June 1988.

Part 376 DM 6, ADP—ADP Cost Accounting, Cost Recovery, and Sharing.

Part 376 DM 10, Life Cycle Management of AIS.

Part 376 DM 11, Information Resources Management—ADP Resource Inventories.

Part 376 DM 13, ADP—Automated Information Systems Management Accountability.

Part 377 DM 2, Telecommunications. October 1983.

Part 382 DM 11, Managing Records in Electronic Form.

Part 383 DM 1-12, Management and Safeguarding of Privacy Act Records.

Department of the Interior Property Management Regulations (IPMR).
Department of the Interior Acquisition Regulations (DIAR), including:

DIAR 1424.104 (Required contractual clauses for contracted operations)

Department of the Interior Departmental Handbooks (available from Division of Printing and Publications, Office of Administrative Services, Department of the Interior, Washington, DC 20240), including:

DOI Information Resources Security Handbook.

Telecommunications Handbooks:

Radio Communications Handbook. April 1986.

Data Communications Handbook

Telecommunications Terminology Handbook. December 1983.

Telephone Systems Handbook. 4 January 1985.

Local Area Network Guide. 2 October 1988.

Department of the Interior, A Project Manager's Guide to Benefit/Cost Analysis of Information Technology Investments, January 1989.

Department of the Interior, A Project Manager's Guide to Application Systems Life Cycle Management (376 DM 10), August 1985.

DOI Mainframe Strategy, May 1988.

DOI Strategic Framework for Information Resources Management, July 1988.

Office of Surface Mining Reclamation and Enforcement

Office of Surface Mining Directives. (Available from the Chief, Division of Management Services), including:

OSMRE Directive INF-11, Information Systems Management Program. October 1982.

OSMRE Directive OPM-11, Information Systems Management Directorate Organization and Functional Statements. June 1987.

Executive Office of the President, Office of Management and Budget

Internal Control Guidelines, December 1982.

Office of Personnel Management's Federal Personnel Manual.

OMB Circular No. A-123, Internal Control Systems
OMB Circular No. A-130, Management of Federal Information Resources

OMB Circular No. A-127, Financial Management Systems

OMB Circular A-130, Management of Federal Information Resources. December 1985.

OMB Circular A-11, Preparation and Submission of Budget Estimates, Section 43.2.

Federal Laws/Regulations

Computer Security Act of 1987 (PL 100-235).

Department of Defense Authorization Act of 1982.

Federal Managers Financial Integrity Act

National Archives and Records Administration's regulations on records management.

Paperwork Reduction Act of (44 USC 3506(c)(8)) (PL 96-511).

Paperwork Reduction Reauthorization Act of 1986 (PL 99-500)

Privacy Act of 1974, as amended (5 USC 522a)

General Services Administration

General Services Administration's Federal Information Resources Management Regulations (FIRMR) on security, privacy, Automated Data Processing (ADP) and acquisition, telecommunications management and acquisition, and records management including:

FIRMR 201-33.003 (Reuse of ADPE)
FIRMR 201-31 (Sharing ADP resources)
FIRMR 201-32.104 (Computer security)
FIRMR 201-23.103 (Thresholds)
FIRMR 201-6 (Required contractual clauses for contracted operations)

FIRMR 201-30.007 (Requirements analysis)
FIRMR 201-30.009 (Analysis of alternatives)
FIRMR 201-30.007(d)(9) and 201-34.002 (Performance Evaluation for current ADP system)
FIRMR 201-30.009-3 (Findings to support the use of compatibility limited requirements)
FIRMR 201-30.012-1 (Software conversion study)
FIRMR 201-11.002(b) (Certified data to support sole source)
FIRMR 201-11.002-1 (Certified data to support sole make/model)
FIRMR 201-30.012 (Planned actions to foster competition)

Federal Information Resources Management Regulations (FIRMR) Supplement, Federal IRM Review Handbook, 1985.

Federal Acquisition Regulations (FAR), including:

FAR 2.1
FAR 24.104 (Required contractual clauses for contracted operations)

Department of Commerce, National Bureau of Standards

Federal Information Processing Standards (FIPS). FIPS PUBS are sold by the National Technical Information Service (NTIS), U.S. Department of Commerce. A FIPS PUBS Index summarizing each FIPS PUB is available from:

Standards Processing Coordinator (ADP)
Institute for Computer Sciences and Technology
Building 225, Room B-64
National Bureau of Standards
Gaithersburg, MD 20899
Phone: (301) 975-2816

All current FIPS PUBS are incorporated in OSM policy by reference. FIPS PUBS specifically cited herein include:

Guidelines for Documentation of Computer Programs and Automated Data Systems, 30 June 30 1974, Federal Information Processing Standard Publication 38.

Federal Information Processing Standard Publication 64, Guidelines for Documentation of Computer Programs and Automated Data Systems for the Initiation Phase, August 1979.

Guidelines for Software Documentation Management, 6 June 6 1984, Federal Information Processing Standards Publication 105.

Other Governmental Organizations

Automated Application System Internal Control Guideline

Department of the Navy, Naval Data Automation Command, Publication 15, Economic Analysis Procedures for ADP.

Department of Treasury Directive 81-80, Electronic Funds and Securities Transfer Policy—Message Authentication.

Federal Telecommunications Standards Committee.

National Security Decision Directive 145.

Other Non-Governmental Organizations

American National Standards Institute (ANSI).

Electronic Industries Association (EIA).

Institute of Electrical and Electronics Engineers (IEEE)

International Organization for Standardization (IOS).

International Telegraphic and Telephone Consultative Committee (CCITT).

Appendix C.

OFFICE OF SURFACE MINING MANAGEMENT INFORMATION SYSTEMS CONTACTS

Appendix C
OFFICE OF SURFACE MINING
MANAGEMENT INFORMATION SYSTEMS CONTACTS

Office of Surface Mining
Chief, Division of Management Information Systems
1951 Constitution Avenue, N.W., Room 142
Washington, D.C. 20240
FTS 268-2916
Commercial 202-208-2916

Chief, System Development Operations and Maintenance Branch
1951 Constitution Avenue, N.W.
Washington, D.C. 20240

Chief, Information Resource Management Branch
1951 Constitution Avenue, NW, Room 125
Washington, D.C. 20240