Integration, Testing, and Deployment
Series 5000

Subject	Type	Standard
Tactical Integration Plan	Identifier	S–5051
	Effective Date	November 1998
	Revision No.	1

Approval _____
CISSCO Program Director

A. PURPOSE

This standard specifies the content and format requirements for a Tactical Integration Plan.

B. APPLICABILITY

This standard applies to all NRC projects, subject to the SDLCM Methodology, that plan to develop and deploy a new, upgraded, or migrated data processing system or software application. This standard does not apply to projects developing embedded processors and associated software intended for hardware control or systems fulfilling a limited and specifically technical purpose for data gathering, storage, or analysis.

This standard is used by those persons who create, update, review, and approve the TIP.

C. REFERENCE PUBLICATIONS

The following publications contain related information:

- *Information Technology Management Reform Act (ITMRA) of 1996*
- *IRM Capital Planning and Investment Control (CPIC) Requirements*
- *SDLCM Methodology Handbook*
- *Enterprise Integration/Migration Strategy*
- SDLCM Methodology Procedure P–2141, Operational Readiness Review
- SDLCM Methodology Standard S–1054, Conversion Plan
- SDLCM Methodology Procedure P–5202, Conducting Site Surveys
- SDLCM Methodology Standard S–7073, User Training and Orientation Plan
- SDLCM Methodology Standard S–1056, Security Controls
- SDLCM Methodology Procedure P–5141, Site Acceptance and Operations Testing
- SDLCM Methodology Standard S–5151, Test Plan
- *NRC Model Tactical Integration Plan*, January 3, 1997.

The *NRC Model Tactical Integration Plan* contains additional procedural instructions that support this standard. This standard supersedes all standards information contained in the model.

D. STANDARD

The Tactical Integration Plan (TIP) serves as notification of the intended deployment of a system or application and provides the time frame for scheduled operation. The TIP provides NRC management with the information necessary to:

- Ensure that the level of planning is sufficient to proceed with the system deployment described
- Assess the impact on other components of the NRC Enterprise Model
- Confirm the adequacy of the schedule and budget to complete the deployment and initial operation

The TIP reflects the full extent of planning at the time of its creation and represents the risks attendant in the deployment process.

Early development of the TIP will facilitate the planning for all other interfacing processes and permit them to make timely arrangements and adjustments to any affected physical and data interfaces. The TIP is created as an activity of Component 1 of the SDLCM Methodology and is updated at least quarterly with successive levels of detail to keep it current as an overall planning document. The Technical Project Manager is responsible for ensuring that the plan is updated as scheduled.

The following paragraphs describe the content of each section of the TIP. In preparing the TIP, retain those subsections that do not apply, providing a brief statement as to why they are not applicable. Add other topics necessary to provide a complete picture of the planning elements. When appropriate, reference other documents and plans rather than repeating material unnecessarily. Summarize important material, as needed, to clarify or emphasize special aspects of the plan.

1. DEPLOYMENT OVERVIEW

1.1 Description of the Deployment

Provide an overview of the deployment effort of the system addressed by the Tactical Integration Plan (TIP). Identify and characterize the system, its software and architectural complexity, its geographic deployment, the number of operators required (if any), and the expected number of users. Provide the anticipated initial operability date.

State whether the system is a new, enhanced, or integrated or migrated version of an existing system. Indicate how any existing databases will be affected by the introduction of the system or application.

1.2 Reference Documents

Provide a list of reference documents for use by personnel involved in the preparation and accomplishment of the deployment of the system, including applicable standards and previously developed system documentation, such as:

- Project Charter
- Project Action Plan
- Definition and Analysis Document

All systems documentation must be available and considered in the development of the final TIP.

1.3 Responsibilities

Provide a table indicating the activities required for deployment of the system and the project personnel (NRC and contractor) having responsibility for completion.

Use the following examples of deployment activities as a starting point for activities to include in the system's activity-role table:

- Describe the approach to be followed for installation in the support environment identifying risks or uncertainties and plans for dealing with them.
- Develop and record plans for performing software installation at the support site(s).
- Verify that the plan is consistent with other project plans and presents a sound approach to the installation.
- Install and check out the deliverable software on its target computer(s) at the support site(s).
- Prepare the executable software for each support site, including any batch files, command files, data files, or other software files needed to install and operate the software on its target computer(s).

- Prepare the source files to transition to the support site, including any batch files, command files, data files, or other files needed to regenerate the executable software.
- Identify and record the exact version of software prepared for the support site.
- Define and record the methods to be used to verify copies of the software.
- Identify and record information needed to program and reprogram any firmware devices in which the software will be installed.
- Install and check out the deliverable software in the support environment.
- Conduct joint software supportability technical and management reviews.

Specify by role name (or sub-role name in the case of Development Team members), not the name of an actual person, the person(s) responsible for each activity. The *SDLCM Methodology Handbook* contains role names, descriptions, and responsibilities as they apply to the methodology.

1.4 Schedule for Development of Deployment Plan Components

The Work Breakdown Structure (WBS) and schedule for all of the project's activities will be included in the Project Action Plan (PAP), the primary management planning document for development of a system subject to the SDLCM Methodology.

Specify the activities and schedule related to tactical integration in the TIP. Identify for the system the tactical planning activities that must be performed before the actual deployment commences, as well as the tactical integration activities that are performed within Component 5, Deploy the Solution, of the SDLCM Methodology.

1.5 Deployment Budgetary Data

Provide budgets for the deployment and operation of the system. Identify those portions of the deployment budget related to deployment management, user hardware and software procurement, user training, facility modification and preparation, site testing, installation, documentation, and any other identified deployment expenditures. Additionally, include operations and maintenance (O&M) cost estimates related to application or system management and operational support, operator labor, help line, software and hardware maintenance, supplies, and allocated utility and facility expenses.

2. ROLLOUT PLAN

2.1 Rollout Elements and Sequence

Identify the key activities that will be performed in deploying the system or application. Describe the effort involved for each activity of the rollout, when each should be initiated, and any interdependencies within the project and with outside systems, applications, and data sources. If multiple sites with similar characteristics are to be deployed, develop a single Site Deployment Plan as a template. Include the details for site preparation, installation, and acceptance.

If the application system is to be deployed incrementally in multiple builds or releases, identify the number of software builds and releases. Specify the software functionality that will be implemented in each build or release.

2.2 Rollout Schedule

Provide a schedule, which should be updated to include progressively more detailed information as the application system is developed, for the site surveys, facility preparation, site installation, user readiness validation, training, business and organizational transition, and acceptance of the system. If multiple sites have identical rollout activities, provide a single model schedule to show the details of a generic installation and indicate the start and completion date of each site to be installed in the overall schedule.

If the application system is to be deployed incrementally in multiple builds or releases, provide a detailed schedule and staffing plan for rollout of each build or release. Refer to Section 2.2, Project Performance Plan, of the Project Action Plan, as applicable.

2.3 Operational Readiness Review

If the project includes complex systems involving multiple organizations, include the plans for an Operational Readiness Review (ORR).

Provide the framework for the ORR by identifying the NRC attendees and their responsibilities, establishing a time frame for the meeting, and presenting a preliminary checklist of activities that must be successfully completed for operations to commence. Stipulate that the ORR be conducted before any utilitarian operation of the system or application is attempted, even if parallel operations are to be performed. Identify the role of each review participant, including that each should be authorized to speak for the status of his or her business area and have actual or delegated authority to commit effort to complete any open items.

Refer to SDLCM Methodology Procedure P–2141, Operational Readiness Reviews, for a table that illustrates various areas of interest in the assessment of operational readiness that will be considered in the review. Document the applicable assessment interest areas in this section.

If deployment at multiple sites will occur at widely spaced time frames, include the plan for a two-phased ORR in this section. Identify when the first review will be conducted and the activities that will be covered. Specify when a subsequent review will be held for an individual site(s) and note that these reviews will address only those assessment interest areas related to the site in question.

2.4 Physical, Functional, and Documentation Audits

Describe how, when, and by whom audits related to deployment are to be performed. Specify that audits are certified by the CISSCO program personnel responsible for quality assurance. Include (1) physical audits that involve checking that all physical components of the system or application are available and installed, (2) functional audits that validate that all functions called

for in the system requirements documents are included and operative in the developed system or application, and (3) documentation audits that verify that the documents provided to the maintainers and users are faithful to the actual system or application.

2.5 Data Conversion

Provide a data conversion plan overview consistent with the target application data model.

Refer to the Conversion Plan or, if a separate Conversion Plan is not being produced, specify the data conversion considerations applicable to the project and describe how they will be met. Data conversion considerations are identified in SDLCM Methodology Standard S–1054, Conversion Plan.

Refer to the Conversion Plan or describe the system backup or reversion strategy in the event that the data conversion is impaired or not completed due to unforeseen circumstances.

2.6 Documentation Preparation and Turnover

State who is responsible for assembling the package of documentation for turnover to the O&M management, maintainers, operators (if any), help desk, system and data administrators, and users. Describe the procedure that will be used to assemble and deliver the documentation package. (Note: The documentation package should represent the full spectrum of data needed to operate the resulting application or system in the absence of the developing organization.)

Identify, by name and number, all documentation necessary to maintain the software and hardware (for example, requirements specifications, design specifications, listings, database schema, test plans and procedures), any in-force warranty or hardware maintenance agreements, COTS documentation, installation guides, training documentation, integration documentation, source and object code, and user guides.

In addition, provide an up-to-the-moment accounting of all in-process software problems and associated repairs and fixes. If responsibility for configuration management is to shift also, provide a detailed accounting of current and past versions.

Document the location and content of a library of all material formally developed for the system or application for use by O&M management for reference and for updating the data after upgrade, revision, or maintenance changes.

2.7 User Equipment and Software Validation

Identify, by class of user, the minimum anticipated hardware configuration and software and associated version numbers necessary to operate and use the resulting system or application. Document any requirements to be imposed on interfacing software that will be added to the design.

Describe the technique to be used for determining all expected users and for verifying that each user has the required minimum hardware and software configuration. If existing hardware or

software is inadequate, document the method for obtaining upgrades, either through project funding or normal capital upgrades within the NRC user's organization. If the current project is responsible, document the funding that is budgeted for the anticipated required upgrades.

2.8 Operational Security Plan

This paragraph is applicable only to systems or applications with security requirements.

Refer to the Security Plan, if applicable, or identify the primary personnel and physical security requirements, and the NRC and CISSCO contractor organizations responsible for ensuring that they are met. Include the provisions for establishing or verifying the clearances of all operators, maintainers, and users, new and existing, before training them and allowing them access to the new system or application; having any facility modifications completed and inspected for security; and having existing communications paths revalidated. If the information to be used by the application has a specific number of billets associated with it, identify the organization controlling access and its role in determining those with need-to-know.

2.9 Facility Plan

The facility plan provides the ground rules to be followed in managing, determining, scheduling, initiating, and verifying the fulfillment of all physical construction or modifications necessary to field the system or application. In the initial version of the TIP, coverage of facility requirements will necessarily provide only a high level of detail, but subsequent quarterly updates should be used to complete any to-be-delivered (TBD) items, especially those requiring long lead times, such as any new construction or equipment ordering.

Identify and provide addresses and room numbers for all sites to be used by the system or application, unless security precautions preclude this. Describe the provisions for site surveys of all sites to be employed in the new system or application that will undergo modifications or the introduction of new equipment so that the proper services can be established.

Name the NRC and supporting CISSCO contractor organizations responsible for site surveys, site planning, and accomplishing the construction. Provide the beneficial occupancy date for the completed work. Establish dates for provision of requirements and receipt of construction estimates and equipment quotes.

Describe the application, its associated hardware, and needed offices in physical terms and translate this into space and support services (electrical, plumbing) descriptions. When dealing with existing sites, indicate the source of detailed construction data and available services. Pay particular attention to making known special considerations, such as the specification of grounding, communications entrances, security mandated shielding. As design information becomes available, quantify power requirements, provide equipment layouts and floor cutouts, and water and environmental information.

Establish the CISSCO contractor organization responsible for installing and connecting power and data cables and miscellaneous panels and switchboards in the completed spaces; provide schedules allowing for site inspections and corrections after installation.

If equipment, in addition to the development suite, will be used in the system or application, establish dates for finalizing and ordering the material.

Identify any requirements for the provisioning of spares and establish policies and procedures as necessary.

2.10 Training Plan

Establish responsibility for developing a pre-deployment User Training and Orientation Plan, naming the CISSCO contractor developing organization and due dates for expected outputs. If training by a commercial training firm (as for COTS software) or equipment suppliers is anticipated, identify the source of the training and dates for commencing the procurement activity.

Provide an outline of the training courses desired, based on the desired training complement for each operator, user, help desk staff, and maintainer. Specify the level of detail required for each course and indicate the scope of knowledge to be included. Include a preliminary training schedule, based on the initial operability date. Identify the desired training locations. Specify the course evaluation mechanism that will be used to provide feedback.

2.11 User Guides

Establish responsibility for developing the User Guide(s). If software activity, other than rehosting, will take place, create a requirement for involvement of the future users in contributing to the functionality, sequencing, and visual aspects of the new software.

Provide initial data on the desired contents of the User Guide(s) and for whom they will be written (for example, operators, maintainers, and users). Discuss how all accessible functions will be divided among the User Guides to ensure that each function is covered by at least one of the guides. State the need for a description of the operational and functional environments, for specific details on software initialization, backup, and shutdown, and for operational sequence diagrams for functions involving complex interactions between operators or users and multiple processor functions or screens. Require that all error and external (to the developed application) interactions be documented, that error messages be defined, and that all data be carefully defined.

2.12 Cutover

State the specific strategy and associated steps for going operational with the system or application. Include discussion of any planned and separately deployed builds or other incremental releases that may further complicate the actual cutover by requiring the cutover and acceptance process to be repeated.

Section 3.12 of the *Model TIP* identifies a number of factors that may influence the choice of cutover technique and timing. Identify any of these factors that are applicable to the current project.

Address any required changes in the affected business processes.

Describe the mechanism for shutting down the original business process that is being replaced or altered. Include the mechanism for capturing lessons learned from the cutover experience.

2.13 On-Site Acceptance Testing

Describe the extent and formality of testing to be performed at the user workstations, including rerun of those elements of the system-level acceptance testing that relate to user-level or user-initiated system-level functions. Address how help desk and operations personnel will be involved in the site-level acceptance testing. Describe other items, which are unique to each site (such as external communications), that will be tested thoroughly in each location.

Indicate the process for ensuring the completion of open items existing at the site at the time of acceptance and identify who has responsibility for their completion. Establish the criteria by which cutover and acceptance will be declared complete.

2.14 Coordination with Other Interfacing and Impacted Systems

Describe any necessary coordination with the owners of other systems, applications, or databases with which this application interfaces. Include situations such as those in which the data interchange has been modified in some fashion, where a new piece of support software has been substituted or upgraded, or where a supporting platform has been upgraded or replaced. Identify the testing to be performed with the other systems, including the use of live data and operational software, to verify proper operation prior to cutover.

2.15 Performance and Customer Satisfaction Measurement and Validation

Discuss the measurement data to be collected to substantiate the system or application performance. Identify how the selected measures will be compared with previous implementations of the similar functions, if any.

Describe the process that will be used to determine customer satisfaction.

2.16 Updating NRC Infrastructure Documentation

Provide a schedule for updating infrastructure documentation, including any modifications to the Systems Inventory, the Government Information Locator System, and any local policies and procedures. Identify provisions for the updating of any site plans and practices to reflect the as-built situation.

3. OPERATIONS AND MAINTENANCE (O&M) PLAN

3.1 O&M Overview

Discuss the overall management of the operations and maintenance of the system or application (Component 6, Service the Solution). Include a chart of the NRC and CISSCO contractor organizations that will have configuration, software, and hardware maintenance responsibility for the system or application. If the maintenance organization is not unified (that is, not all under the same direct management), indicate how the interfaces between the disparate organizations will be accommodated.

3.2 Software Maintenance Structure and Responsibilities

3.2.1 PRE-DEPLOYMENT LEAD

Identify who will perform the software maintenance, both for problems identified, but unfixed, prior to deployment and for problems identified after deployment.

3.2.2 POST DEPLOYMENT REPORTING PROCEDURES

Identify how pre-deployment, but unrepaired, software problems will be tracked and fixed. Also identify the procedures for reporting, tracking, and correcting post-deployment problems.

3.2.3 RESPONSIBLE ORGANIZATION

Identify the organization that will determine the priority and necessity for software problem resolution. Indicate the NRC owner of the system, who will act as the decision point for changes to the system or application.

If appropriate, suggest a plan for the involvement of the CISSCO contractor's Laboratory. Document the resources that would be required, including the equipment necessary for the Laboratory to effectively maintain the current software, develop upgrades, and mirror the NRC operating units for trouble shooting purposes.

3.3 Hardware Maintenance Structure and Responsibilities

3.3.1 HARDWARE MAINTENANCE RESPONSIBILITY

Indicate who will perform the hardware maintenance for system-level units and workstations related to the system or application. Identify who is responsible for preventive maintenance actions.

3.3.2 HARDWARE MAINTENANCE PROCEDURES

Describe the mechanism for responding to a maintenance problem (for example, a staffed help desk). Describe how support to users of the application system differs from that of the core

system. Indicate who has responsibility for compiling the preventive maintenance schedule and overseeing its carry through.

If the application requires maintenance agreements, consider enterprise-wide agreements before entering into tenant agreements.

3.4 Post Deployment Training Plan

Provide a brief post-deployment policy statement and plan for determining the need for, and providing, first time and refresher training to new and existing operators and users, as necessary.

3.4.1 STAFF TRAINING INITIATOR

Identify, by name and role, who will be responsible for initiating post-deployment training.

3.4.2 TRAINING BUDGET

Specify how training will be budgeted.

3.4.3 TRAINERS

Identify, by name and role, who will perform the training.

3.4.4 TRAINING REQUIREMENTS

Briefly describe the post-deployment training requirements.

3.4.5 COURSES

Identify the courses that are planned and how they will be updated to coincide with custom software and COTS or GOTS updates.

3.4.6 TRAINING PLAN AUTHOR

Indicate who will write the Post-Deployment Training Plan and a schedule for its delivery.

3.4.7 TRAINING CERTIFICATION REQUIREMENTS

If operator certification is required, indicate under what circumstances, recertification will be necessary.

3.5 O&M Procedure Development and Validation

Name and briefly describe the scope of each O&M procedure to be developed for the system or application. The set of O&M procedures should encompass the complete management control of the post-deployment phase, including maintenance management, operator training, logistics, operator staffing and assignment, backup and recovery procedures, configuration management,

and an annual review by the cognizant Overall Project Manager with the Office of the Chief Information Officer (OCIO) Development and Maintenance Executive of the system status, operational problems, recommended potential improvements and the necessity for continuance of the system or application. At the OCIO Development and Maintenance Executive's option, this may be a written report.

If the principal functions performed by the system or application have a known life span, include provisions for review at the end of the life span and decommissioning, if warranted.

3.6 Logistics

Compile a list of the necessary hardware maintenance agreements and software licenses that are expected to be required. Update this list after the system or application design has become sufficiently detailed. Include the results and the recommendations resulting from investigating the potential for combining the project's logistics expenses with those of other projects.

3.6.1 HARDWARE MAINTENANCE AGREEMENTS

Use a table to provide the following information for each hardware maintenance agreement required:

- Hardware Maintenance Agreement Identification
- Contact Phone Number
- Required Response Time

3.6.2 SOFTWARE LICENSES

Use a table to provide the following information for each software license required:

- Software License Identifier
- Platform(s) where software resides
- Contact Phone Number

3.6.3 OPERATING SUPPLIES

Estimate the kind and cost of operating supplies required by the system or application. Identify who will be responsible for maintaining them after operation begins.

3.7 Backup, Recovery, and Disaster Procedures

Describe the project's approaches to backup, recovery, and disaster response to be used to ensure that current and historical data are maintained. Identify the procedures that address periodic test cases of data protection and restoration activities. Address certification requirements for validation of the backup and recovery aspects of the system or application as part of the acceptance testing. Identify the assessed priority of data for off-site storage and the assignment of a coordinating organization, if required.

3.7.1 BACKUP FREQUENCY

Include a table that identifies each type of system data and the frequency requirements for both full and partial backups.

3.7.2 OFF-SITE STORAGE

Include a table that identifies each type of system data and the location and contact phone number for off-site storage, the coordinating organization, the coordination lead, and his or her phone number.

3.8 Operations Management

Identify the NRC organization or designee and position of the person(s) responsible for operations management and key members of the supporting staff. List all operator requirements, if any, and how they will be fulfilled. Similarly, list any data and network administrator duties to be performed. List any non-automatic data collection and reports generation that must be accomplished on a recurring basis. If operators are required, identify the number and the coverage that they are to provide (for example, 24 hours a day, seven days a week). Address the planned approach to assigning the operators for full coverage of the required times.

This information may be provided in a table.

3.9 Measurement Reporting

Describe the definition, collection, and reporting of post-deployment performance and usage measurements. Discuss the measurements to be collected to substantiate the system or application performance.

Address measurements from the perspective of operator, as well as machine performance. Describe the capture and analysis of information about the quality of the process outputs, the response of the customers, and the impact on the morale of the users. In addition, describe data to be captured and analyzed to allow comparison of the performance of the business process both before and after implementation of the new system or application.

State how customer satisfaction with the new system or application will be ascertained.

Discuss any deviations from the standard measurement reports and any special measurement reporting requirements.

3.10 Post-Deployment Configuration Management of Hardware and Software

Specify if standard configuration management procedures for operational systems will be followed during post-deployment. If not, discuss any deviations. Identify any additional configuration management procedures that will be required and the plan for their development.

Identify the composition, schedule, and decision-making policy of the project's post-deployment configuration control board. Indicate the name, organization, and chairperson, and identify any support to be provided by the CISSCO contractor.

ACRONYMS

List and define all acronyms used in the Tactical Integration Plan.

REFERENCES

List all cited references.

Subject	Type	Standard
Products Installation and Integration Plan	Identifier	S–5052
	Effective Date	October 1997
	Revision No.	

Approval C E Fitzgerald
CISSCO Program Director

A. PURPOSE

This standard specifies content and format requirements for a Products Installation and Integration Plan.

B. APPLICABILITY

This standard applies to NRC projects, subject to the SDLCM Methodology, that plan to develop and deploy a new, upgraded, or migrated data processing system or software application, when equipment, in addition to the development suite, will be used in the system or application software's operational environment.

This standard is used by those persons who create, review, and approve the Products Installation and Integration Plan.

C. REFERENCE PUBLICATIONS

The following publications contain related information:

- *SDLCM Methodology Handbook*, Component 3
- SDLCM Methodology Standard S–5051, Tactical Integration Plan
- *NRC Model Tactical Integration Plan*, January 3, 1997

D. STANDARD

The Products Installation and Integration Plan provides a detailed description of the activities involved in the installation and integration of equipment resources (Commercial or Government off-the-shelf (COTS or GOTS) hardware and software and custom-developed software) required for the deployment of the solution system. It defines responsibilities, schedules, risks, and risk mitigation approaches.

Tailor this standard as needed to be consistent with the size, scope, and complexity of the installation and integration effort. Add sections and subsections for special topics and delete sections and subsections that are not applicable.

For projects with very small installation efforts, the Products Installation and Integration Plan content may be included as part of the sections of the Tactical Integration Plan (TIP) indicated in the paragraphs below.

The following paragraphs describe the content of each section of the Products Installation and Integration Plan.

1. INTRODUCTION

Describe the purpose of the Products Installation and Integration Plan.

1.1 Background

Provide any information necessary for understanding the project's effort in the installation and integration of products that support the solution system in operational or production environment.

1.2 Objectives

Include project objectives related to installation and integration of hardware and software products needed to support the solution system.

1.3 Scope

Describe the scope of this plan. Specify the number and locations of the production sites that are covered by this plan. Identify the activities that mark the beginning and end of the installation and integration process. Also identify any activities related to the installation and integration of support products that are not covered by this plan.

1.4 Assumptions

Identify any assumptions related to the installation and integration of support products. Include any identified open issues if the installation and integration effort is to continue while issues remain unresolved. Include the degree of criticality in the description of each assumption.

1.5 Applicable Documents

List the documents that support this plan or that provide additional information about the various activities included under this plan, such as hardware and software installation and maintenance manuals and procedures; test requirements; training materials; applicable system requirements and specification documents; project schedules; facility requirements, plans, and activity schedules; and problem resolution procedures and policies.

2. APPROACH

Describe the overall approach that will be followed to installed and integrate the hardware and software products needed to support the solution system in the operational environment.

2.1 Installation and Integration Activities

Describe the various stages of activity and the strategy for accomplishing the installation and integration of the operational support products. Clearly identify the date and activity that marks the end of the installation and integration of the operational support products.

2.2 Installation and Integration Organizational Responsibility

Describe the organizations involved and their responsibilities. Describe how coordination will be maintained among these organizations.

3. GENERAL INSTALLATION AND INTEGRATION PLANNING

Include in this section the planning that is required for the installation and integration of the operational support products that are common to both hardware and software support equipment.

3.1 Solution System Overview

Briefly describe the solution system's function and the context in which it operates, including the support equipment interfaces. State any special conditions that exist and how they might affect this plan or its implementation.

3.2 Identification of the Products to be Installed and Integrated

Identify the support equipment (both hardware and software) to be installed at the operational site(s) and their sources (for example, COTS, GOTS, custom developed). Include model or version identification as appropriate and a contact person and phone number for each source. Use a bulleted list or table to provide this information.

3.3 Facility preparation

Identify any facility requirements related to the support equipment. Include such items as the locations that must be prepared for the operational support equipment, needed power and cabling support, dates that the various locations must be ready for the installation and integration of the equipment.

Identify any physical security and safety restrictions for hardware, software, or personnel entering each facility.

Refer to Section 2.9, Facility Plan, of the TIP as appropriate. If the effort is a small or uncomplicated one, include all facility preparation information related to the support equipment in Section 2.9 of the TIP.

3.4 Support Equipment Installation and Integration Milestones

Provide the milestone schedule for the installation and integration period. Indicate dependencies. Include the major hardware and software integration activities and any other associated activities,

such as acceptance testing. Include facility preparation milestones that affect installation activities and the date by which support equipment installation and integration must be complete.

Refer to Section 1.4, Schedule for Development of Deployment Plan Components, of the TIP as appropriate. If the effort is a small or uncomplicated one, include all installation and integration milestones in Section 1.4 of the TIP.

3.5 Support Equipment Installation and Integration Roles and Responsibilities

Provide a table indicating the activities required for installation and integration of the support equipment and the project personnel (NRC and contractor) having responsibility for their completion.

Specify by role name (or sub-role name in the case of Development Team members), not the name of an actual person, the person(s) responsible for each activity. The *SDLCM Methodology Handbook* contains role names, descriptions, and responsibilities as they apply to the methodology.

Refer to Section 1.3, Roles and Responsibilities, of the TIP as applicable. If the effort is a small or uncomplicated one, include all installation and integration related activities and the associated roles and responsibilities in Section 1.3 of the TIP.

3.6 Problem Identification and Resolution

Identify the problem reporting and tracking procedures that will be followed. Identify who is responsible for reporting problems in the support equipment being installed and for implementing approved fixes or changes during the installation and integration process. Refer to the project's problem resolution procedures, as applicable.

3.7 Training Requirements

Identify any training or cross-training requirements associated with the installation and integration of the operational support products.

3.8 Risks and Risk Mitigation

Enumerate the risks associated with installation and integration of the operational support hardware or software. Examples of such risks include availability or on-time delivery of COTS equipment, delays in facility or site preparation, and failures of the support hardware or software during installation. Analyze the potential impact of any identified risks and describe any proposed risk mitigation strategies, such as activity resequencing, vendor changes or COTS substitution, and equipment rental. Analyses should consider critical project objectives that may be jeopardized.

Refer to Section 2.3, Risk Management, of the Project Action Plan as applicable.

4. HARDWARE INSTALLATION AND INTEGRATION

Address the activities that are specific to the installation and integration of operational support hardware. Operational support hardware includes, but is not limited to, platforms, peripherals, and communications hardware.

4.1 Hardware Installation and Integration Activities

Summarize the activities involved in hardware installation and integration. Examples of such activities include: special shipping, packaging, or delivery requirements; preshipment checkout of the support equipment; site preparation; removal of the old system; setup; post-installation inspection and testing of the support equipment; vendor or third-party system software installation; network connection and integration; and integration with support software.

Identify the procedures that will be followed to perform these activities.

4.2 Hardware Acceptance

Summarize the acceptance activities associated with the new or reconfigured support hardware. This can include both pre- and post-installation checkout and the exercising of the physical interfaces. Specify the acceptance criteria. Describe the conditions necessary for acceptance testing both to begin and to conclude successfully.

5. SOFTWARE INSTALLATION AND INTEGRATION

Address the activities that are specific to the installation and integration of operational support software. Operational support software includes, but is not limited to, operating systems, database management systems, language compilers and generators, and graphical user interface (GUI) builders.

5.1 Software Installation and Integration Activities

Summarize the activities involved in hardware installation and integration. Examples of such activities include: system configuration; software installation, setup, and testing; file allocation and user account creation; network installation; operating system and vendor or third-party COTS or GOTS software installation and testing; and installation of monitoring tools.

Identify the procedures that will be followed to integrate the support software with the support hardware and with the solution system. Include development of the initial system tuning parameter values.

As necessary, establish policies and procedures for installing and accepting new software releases, ensuring integrity and security of the system and its data, and monitoring resource usage.

5.2 Software Acceptance

Summarize the acceptance activities associated with the new or reconfigured support software. These activities can include formal reviews and inspections by the customer or purchasing agency. Specify the acceptance criteria. Describe the conditions necessary for acceptance testing both to begin and to conclude successfully.

System Development and Life-Cycle Management (SDLCM) Methodology

Subject	Type	Standard
Solution Integration Plan	Identifier	S–5053
	Effective Date	October 1997
	Revision No.	

Approval _____
CISSCO Program Director

A. PURPOSE

This standard specifies the content and format requirements for a Solution Integration Plan.

B. APPLICABILITY

This standard applies to all NRC projects, subject to the SDLCM Methodology, that plan to develop and deploy a new, upgraded, or migrated data processing system or software application.

This standard is used by those persons who create, review, and approve the Solution Integration Plan.

C. REFERENCE PUBLICATIONS

The following publications contain related information:

- *SDLCM Methodology Handbook*, Component 3
- SDLCM Methodology Standard S–5051, Tactical Integration Plan
- SDLCM Methodology Standard S–5151, Test Plan
- SDLCM Methodology Standard S–1052, Project Action Plan
- *NRC Model Tactical Integration Plan*, January 3, 1997

D. STANDARD

The Solution Integration Plan provides a detailed description of the activities involved in the integrating the hardware and software configuration items (CIs) of the solution system. It also specifies roles and responsibilities and the integration schedule, and identifies any risks, and risk mitigation approaches applicable to the integration process.

Tailor this standard as needed to be consistent with the size, scope, and complexity of the integration effort. Add sections and subsections for special topics and delete sections and subsections that are not applicable.

If the solution system is a small one and includes only one or two CIs, the integration effort may be described in the Tactical Integration Plan (TIP).

The following paragraphs describe the content of each section of the Solution Integration Plan.

1. INTRODUCTION

Provide any information necessary for understanding the project's effort in the integration of the hardware and software CIs of the solution system as they are built.

1.2 Objectives

Describe the end or ends that the project intends to achieve during the solution integration process. If there is an overall goal, state that within this section and clarify that it is the goal.

1.3 Scope

Describe the scope of this plan. Identify the activities that mark the beginning and end of the integration process. Also identify any activities related to the integration process that are not covered by this plan.

1.4 Assumptions

Identify any assumptions related to the integration of the solution system. Include any identified open issues if the integration effort is to continue while issues remain unresolved. Include the degree of criticality in the description of each assumption.

1.5 Applicable Documents

List the documents that support this plan or that provide additional information about the various activities included under this plan, such as test requirements, training materials, applicable system requirements and specification documents, project schedules, and problem resolution policies and procedures.

2. APPROACH

Describe the overall approach that will be followed to integrate the hardware and software CIs of the solution system.

2.1 System Overview

Briefly describe the solution system's function and the context in which it operates, including the support equipment interfaces.

Identify the hardware and software CIs that will be integrated to form the solution system. If they are being developed or acquired by different organizations, specify that information. Indicate when each component is planned to be ready for integration. This information may be provided in tabular form.

State any special conditions that exist and how they might affect this plan or its implementation.

2.2 Integration Activities

Describe the various stages of activity and the strategy for accomplishing the integration of the various CIs. Clearly identify the date and activity that marks the end of the solution system integration effort.

2.3 Integration Milestones

Provide the milestone schedule for the solution integration period. Indicate dependencies.

Refer to Section 1.4, Schedule for Development of Deployment Plan Components, of the project's TIP as appropriate If the solution integration effort is a small or uncomplicated one, include all integration milestones in Section 1.4 of the TIP.

2.4 Integration Roles and Responsibilities

Provide a table indicating the activities required for integration of the solution system and the project personnel (NRC and contractor) having responsibility for their completion.

Specify by role name (or sub-role name in the case of Development Team members), the person(s) responsible for each activity. The *SDLCM Methodology Handbook* contains role names, descriptions, and responsibilities as they apply to the methodology.

Refer to Section 1.3, Roles and Responsibilities, of the TIP as applicable. If the effort is a small or uncomplicated one, include all integration related activities and the associated roles and responsibilities in Section 1.3 of the TIP.

2.5 Problem Identification and Resolution

Identify the problem reporting and tracking procedures that will be followed. Identify who is responsible for reporting problems during solution integration and for implementing approved fixes or changes during the integration process. Refer to the project's problem resolution procedures, as applicable.

2.6 Risks and Risk Mitigation

Enumerate the risks associated with integration of the solution system. Examples of such risks include availability of CIs when they are scheduled for integration into the solution system, availability of the needed support environment, and failures of hardware or software CIs during integration. Analyze the potential impact of any identified risks and describe any proposed risk mitigation strategies, such as activity resequencing. Analyses should consider critical project objectives that may be jeopardized.

Refer to Section 2.3, Risk Management, of the Project Action Plan as applicable.

2.7 Integration Testing

Identify the procedures that will be used to verify successful integration of the hardware and software CIs of the solution system. Refer to the project's Test Plan for a description of the testing that will be performed.

Subject	Type	Standard
Other Systems Integration Plan	Identifier	S–5054
	Effective Date	October 1997
	Revision No.	

Approval C E Fitzgerald
CISSCO Program Director

A. PURPOSE

This standard specifies the content and format requirements for an Other Systems Integration Plan.

B. APPLICABILITY

This standard applies to all NRC projects, subject to the SDLCM Methodology, that plan to develop and deploy a new, upgraded, or migrated data processing system or software application, when that system must be integrated with other NRC systems.

This standard is used by those persons who create, review, and approve the Other Systems Integration Plan.

C. REFERENCE PUBLICATIONS

The following publications contain related information:

- *SDLCM Methodology Handbook*, Component 3
- SDLCM Methodology Standard S–5051, Tactical Integration Plan
- SDLCM Methodology Standard S–5151, Test Plan
- SDLCM Methodology Standard S–1052, Project Action Plan
- *NRC Model Tactical Integration Plan*, January 3, 1997

D. STANDARD

The Other Systems Integration Plan provides a detailed description of the activities involved in integrating the solution system with other NRC systems, both legacy and new. It defines responsibilities, schedules, risks, and risk mitigation approaches.

Tailor this standard as needed to be consistent with the size, scope, and complexity of the integration effort. Add sections and subsections for special topics and delete sections and subsections that are not applicable.

If the system's integration with other systems is small, the integration effort may be described as part of the project's Tactical Integration Plan (TIP).

The following paragraphs describe the content of each section of the Other Systems Integration Plan.

1. INTRODUCTION

Provide any information necessary for understanding the project's effort in the integration of the solution system with other NRC systems, both legacy and new.

1.2 Objectives

Describe the end or ends that the project intends to achieve during the process of integrating the solution system with other NRC systems. If there is an overall goal, state that within this section and clarify that it is the goal.

1.3 Scope

Describe the scope of this plan. Identify the activities that mark the beginning and end of the integration process. Also identify any activities related to the integration process that are not covered by this plan.

1.4 Assumptions

Identify any assumptions related to the integration of the solution system with other NRC systems. Include any identified open issues if the integration effort is to continue while issues remain unresolved. Include the degree of criticality in the description of each assumption.

1.5 Applicable Documents

List the documents that support this plan or that provide additional information about the various activities included under this plan, such as test requirements, training materials, applicable system requirements and specification documents, interface control documents, project schedules, problem resolution policies and procedures, and the TIP.

2. APPROACH

Describe the overall approach that will be followed to integrate the solution system with other NRC systems.

2.1 System Overview

Briefly describe the solution system's function and the context in which it operates, especially the interfaces with other NRC systems.

Identify the NRC systems, with which the solution system will be integrated. Specify if each system is a new or legacy system. If the system is a new one, indicate when it is planned to be ready for integration. This information may be provided in tabular form.

State any special conditions that exist and how they might affect this plan or its implementation.

2.2 Integration Activities

Describe the various stages of activity and the strategy for accomplishing integration of the solution system with the other NRC systems. Clearly identify the date and activity that marks the end of the integration effort.

2.3 Integration Milestones

Provide the milestone schedule for the integration period. Indicate dependencies.

Refer to Section 1.4, Schedule for Development of Deployment Plan Components, of the TIP as appropriate If the effort involved in integrating the solution system with other NRC systems is small or uncomplicated, include all integration milestones in Section 1.4 of the TIP.

2.4 Integration Roles and Responsibilities

Provide a table indicating the activities required for integration of the solution system and the project personnel (NRC and contractor) having responsibility for their completion.

Specify by role name (or sub-role name in the case of Development Team members), not by the name of an actual person, the person(s) responsible for each activity. The *SDLCM Methodology Handbook* contains role names, descriptions, and responsibilities as they apply to the methodology.

Refer to Section 1.3, Roles and Responsibilities, of the TIP as applicable. If the effort is a small or uncomplicated one, include all integration related activities and the associated roles and responsibilities in Section 1.3 of the TIP.

2.5 Problem Identification and Resolution

Identify the problem reporting and tracking procedures that will be followed. Identify who is responsible for reporting problems during integration of the solution system with other NRC systems and for implementing approved fixes or changes during the integration process. Refer to the project's problem resolution procedures, as applicable.

2.6 Risks and Risk Mitigation

Enumerate the risks associated with integration of the solution system. Examples of such risks include availability of another new NRC system when it is scheduled for integration with the solution system, poorly defined data interfaces, and failures of the solution system or other NRC system during integration. Analyze the potential impact of any identified risks and describe any proposed risk mitigation strategies, such as activity resequencing. Analyses should consider critical project objectives that may be jeopardized.

Refer to Section 2.3, Risk Management, of the Project Action Plan as applicable.

2.7 Integration Testing

Identify the procedures that will be used to verify successful integration of the solution system with other NRC systems. Refer to the Project's Test Plan for a description of the integration testing that will be performed.

Subject	Type	Standard
Other Integration Issues Plan	Identifier	S–5055
	Effective Date	October 1997
	Revision No.	

Approval C E Fitzgerald
CISSCO Program Director

A. PURPOSE

This standard specifies the content and format requirements for an Other Integration Issues Plan.

B. APPLICABILITY

This standard applies to all NRC projects, subject to the SDLCM Methodology, that plan to develop and deploy a new, upgraded, or migrated data processing system or software application.

This standard is used by those persons who create, review, and approve the Other Integration Issues Plan.

C. REFERENCE PUBLICATIONS

The following publications contain related information:

- *SDLCM Methodology Handbook*, Component 3
- SDLCM Methodology Standard S–5051, Tactical Integration Plan
- SDLCM Methodology Standard S–5151, Test Plan
- SDLCM Methodology Standard S–1052, Project Action Plan
- *NRC Model Tactical Integration Plan*, January 3, 1997

D. STANDARD

The Other Integration Issues Plan provides a detailed description of the activities involved in accomplishing any integration issues not covered by other plans. It defines responsibilities, schedules, risks, and risk mitigation approaches.

Tailor this standard as needed to be consistent with the size, scope, and complexity of the project. Add sections and subsections for special topics and delete sections and subsections that are not applicable.

The content of the Other Integration Issues Plan may be included in the Tactical Integration Plan (TIP) after careful and deliberate consideration of integration issues not covered by any other integration plan.

The following paragraphs describe the content of each section of the Other Integration Issues Plan.

1. INTRODUCTION

1.1 Objectives

Describe the end or ends that the project intends to achieve by deliberately considering integration issues that may not have been covered in any other integration plan.

1.2 Scope

Describe the scope of this plan. Identify the activities that mark the beginning and end of the integration process. Also identify any activities related to the integration process that are not covered by this plan.

1.3 Assumptions

Identify any assumptions related to the integration activities that arise from the integration issues being considered. Include any identified open issues if the integration activities are to continue while issues remain unresolved. Include the degree of criticality in the description of each assumption.

1.4 Applicable Documents

List the documents that support this plan or that provide additional information about the various activities included under this plan.

2. APPROACH

Describe the overall approach that will be followed to integrate the hardware and software CIs of the solution system.

2.1 Identification of Integration Issues

Identify integration issues that will be addressed by this plan. These issues may not be covered in other project integration plans. The following are examples of possible issues:

- Boundaries between the solution system and end-user manual procedures
- Interfaces with systems external to the NRC
- Public access to data manipulated by the solution system but owned by another interfacing system

2.2 Integration Activities

For each identified integration issue, specify the integration process that will be followed. If more than one integration issue is identified, use a numbered paragraph for each:

2.2.1 INTEGRATION ISSUE 1

Briefly describe the integration issue and its context.

2.2.1.1 Integration Requirements—Issue 1

Identify the systems or procedures that must be integrated. Specify the criteria that must be met to verify that the integration has been successful. Indicate when each system or procedure is planned to be ready for integration. This information may be provided in tabular form.

State any special conditions that exist and how they might affect this plan or its implementation.

2.2.1.2 Integration Activities

Describe the various stages of activity and the strategy for accomplishing the integration. Clearly identify the date and activity that marks the end of the integration effort.

2.2.1.3 Integration Milestones

Provide the milestone schedule for the integration period. Indicate dependencies.

Refer to Section 1.4, Schedule for Development of Deployment Plan Components, of the project's TIP as appropriate. If the integration effort is a small or uncomplicated one, include all integration milestones in Section 1.4 of the TIP.

2.2.1.4 Integration Roles and Responsibilities

Provide a table indicating the activities required for integration and the project personnel (NRC and contractor) having responsibility for their completion.

Specify by role name (or sub-role name in the case of Development Team members), not by the name of an actual person, the person(s) responsible for each activity. The *SDLCM Methodology Handbook* contains role names, descriptions, and responsibilities as they apply to the methodology.

Refer to Section 1.3, Roles and Responsibilities, of the project's TIP as applicable. If the effort is a small or uncomplicated one, include all integration related activities and the associated roles and responsibilities in Section 1.3 of the TIP.

2.2.1.5 Problem Identification and Resolution

Identify the problem reporting and tracking procedures that will be followed. Identify who is responsible for reporting problems and for implementing approved fixes or changes during the integration process. Refer to the project's problem resolution procedures, as applicable.

2.2.1.6 Risks and Risk Mitigation

Enumerate the risks associated with integration. Analyze the potential effect of any identified risks and describe any proposed risk mitigation strategies. Analyses should consider critical project objectives that may be jeopardized.

Refer to Section 2.3, Risk Management, of the Project Action Plan as applicable.

2.2.1.6 Integration Testing

Identify any testing that is required to verify that the integration process is successful. If appropriate, include the required testing in the project's Test Plan.

2.2.*n* INTEGRATION ISSUE *n*

Provide the same information for each additional integration issue identified.

Subject	Type	Standard
Network Integration Diagrams	Identifier	S–5056
	Effective Date	October 1997
	Revision No.	

Approval C E Fitzgerald
CISSCO Program Director

A. PURPOSE

This standard specifies the format and conventions to be used in developing Network Integration Diagrams.

B. APPLICABILITY

This standard applies to all projects that use Network Integration Diagrams.

Some of the graphic conventions defined in this standard may not be supported on automated workstations. If feasible, tailor the workstation conventions for consistency with this standard. Otherwise, obtain a waiver to replace the affected conventions with those that can be accommodated on the workstation.

C. REFERENCE PUBLICATIONS

The following publications contain related information:

- *SDLCM Methodology Handbook*, Component 4, Engineer the Solution
- SDLCM Methodology Standard S–5051, Tactical Integration Plan

D. STANDARD

Develop a set of network diagrams that depict the support required by the logical design of the system. These diagrams include one or more of the following as determined by the size and complexity of the system being developed or enhanced:

- Logical Overview Diagram
- Logical Detail Diagram
- Network Architecture Block Diagram
- Site Overview Diagram (Central Site)
- Site Overview Diagram(s) (Remote Sites)

Simple block diagrams will suffice for each of these diagrams, but tool-specific symbols (usually more complex symbols) may be used if they can be easily understood by the unsophisticated reviewer.

Identify the following types of network and system support hardware in these diagrams:

- Network topologies. These include bus, ring, point-to-point, star, and multiconnected topologies.
- Network protocols. These include TCP/IP, IPX/SPX, SNA, and NetBios.
- Interface devices. These include bridges, routers, multiplexors, hubs, and switches.
- Server devices. These include LAN servers, WAN servers, and Gateways.
- User-interface devices. These include workstation, hand-held terminals, printers, and scanners.
- System-support devices. These include file servers and database servers.
- Host processors. These include super servers, minicomputers, and mainframes.

D.1 Logical Overview Diagram

Use a Logical Overview Diagram to graphically depict all enterprise locations and interconnections. If appropriate, simplify the diagramto depict only those that locations and interconnections that are applicable to the project. Use the Logical Overview Diagram as a high-level reference to guide to the Logical Detail Diagrams that follow.

Figure 5056–1 illustrates a simple Logical Overview Diagram.

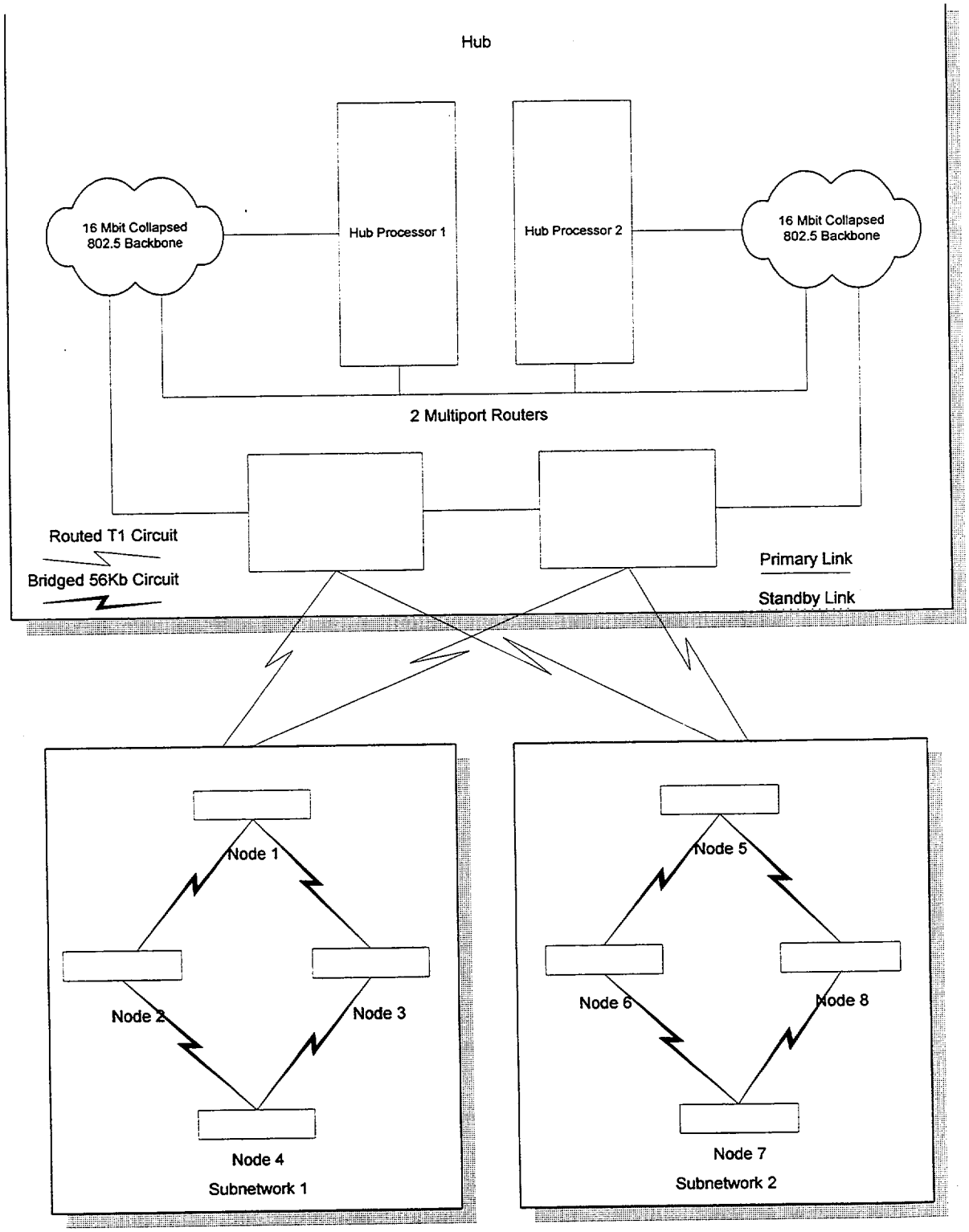

Figure 5056–1. Logical Overview Diagram

D.2 Logical Detail Diagram

Document the network structure (that is, the major hardware components and their interconnections) for a given location or location type using a Logical Detail Diagram. Figure 5056–2 illustrates a simple Logical Detail Diagram that uses available icons from the Visio Technical Drawing Tool for some of the hardware components. Simple blocks, labeled with the components, may be substituted for these icons.

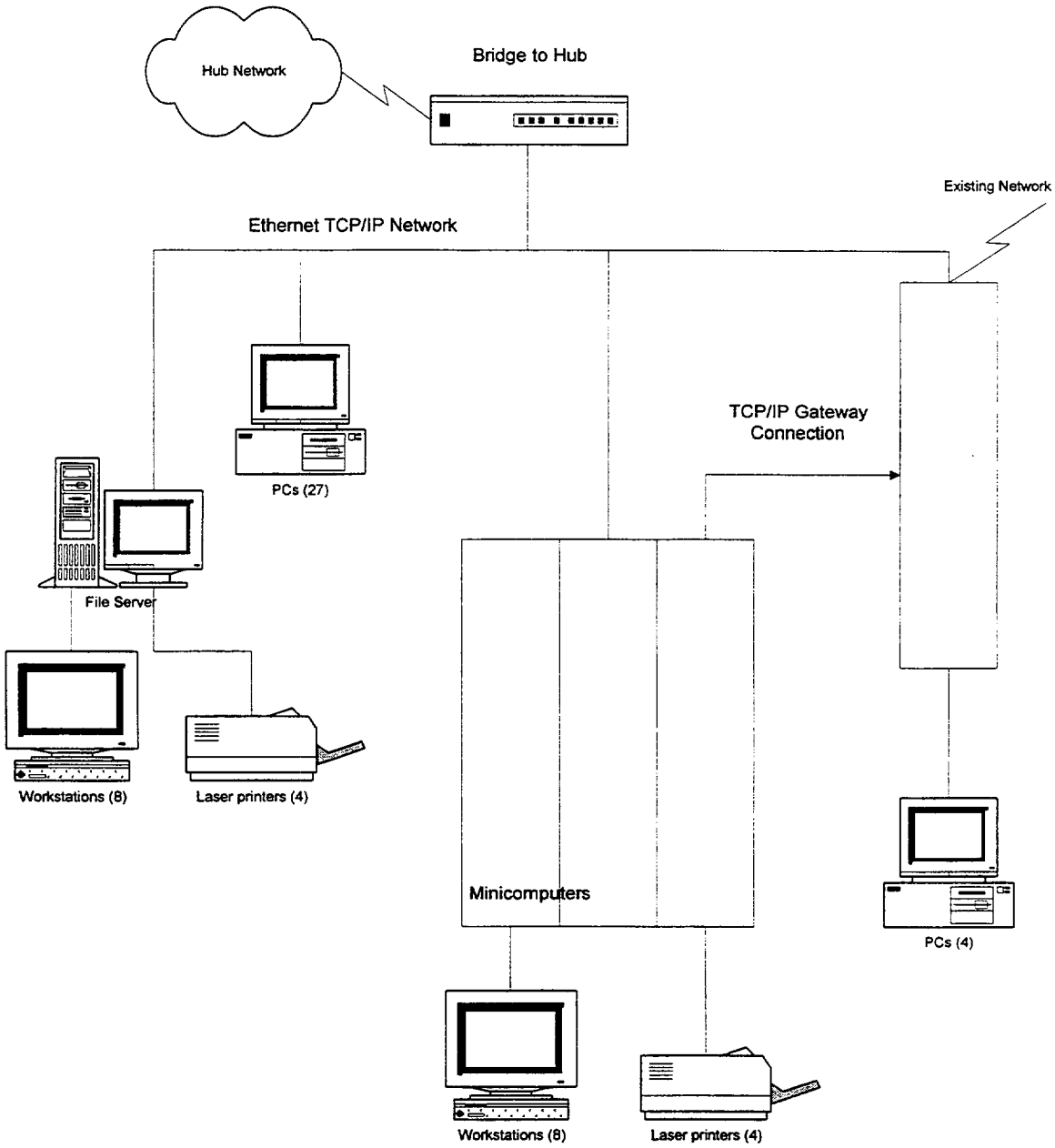

Figure 5056–2. Logical Detail Diagram

Depending on the complexity of the network infrastructure, supplement this basic diagram with one or more of the optional diagrams described below:

D.3 Network Architecture Block Diagram

Graphically depict the major hardware components for each location type and their interconnections in a Network Architecture Block Diagram. Indicate bus, ring, point-to-point, star, or multiconnected topology for each local area network (LAN).

Figure 5056–3 illustrates a Network Architecture Block Diagram.

Note that this diagram represents a logical topology. A logical bus topology like Ethernet or a ring topology like Token Ring can be physically implemented using a central hub.

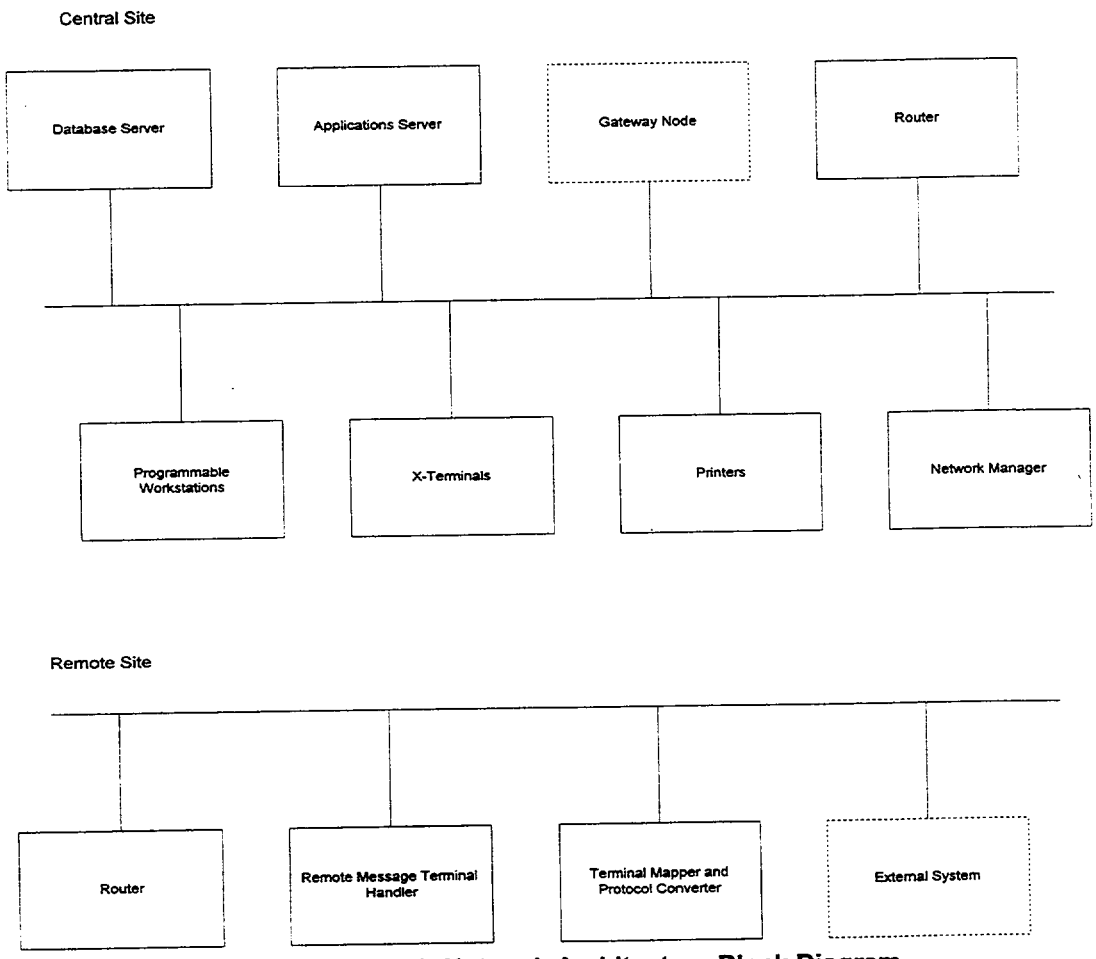

Figure 5056–3. Network Architecture Block Diagram

D.4 Site Overview Diagrams (Central and Remote Sites)

Use a Site Overview Diagram to show in graphical form the intended software stack for each hardware platform. This provides a breakout of the Network Architecture Block Diagram and indicates the software required to implement the communications protocol for the site. Figure 5056–4 illustrates a Site Overview Diagram for a central site and Figure 5056–5 illustrates the diagram for a remote site.

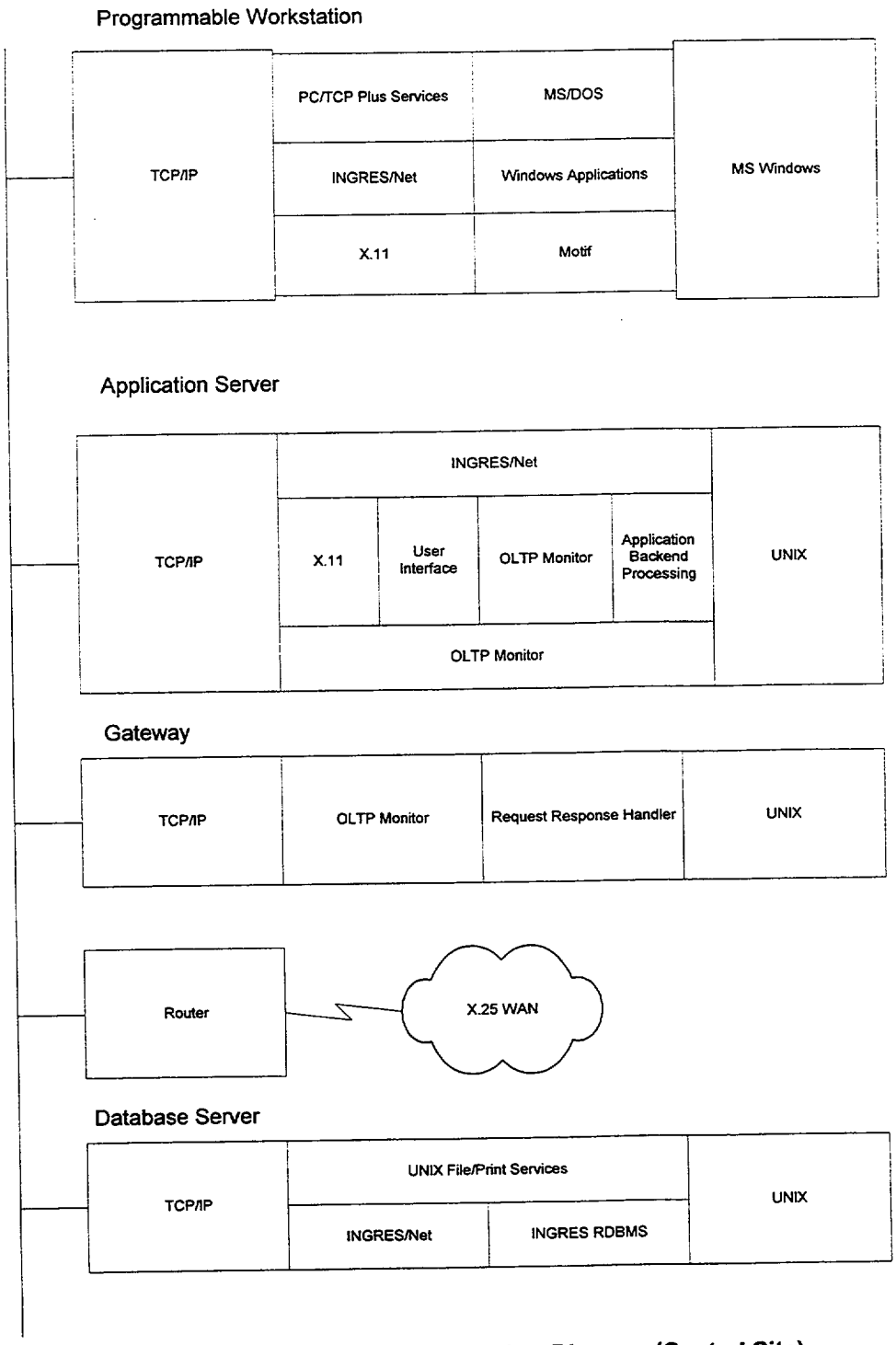

Figure 5056–4. Example of Site Overview Diagram (Central Site)

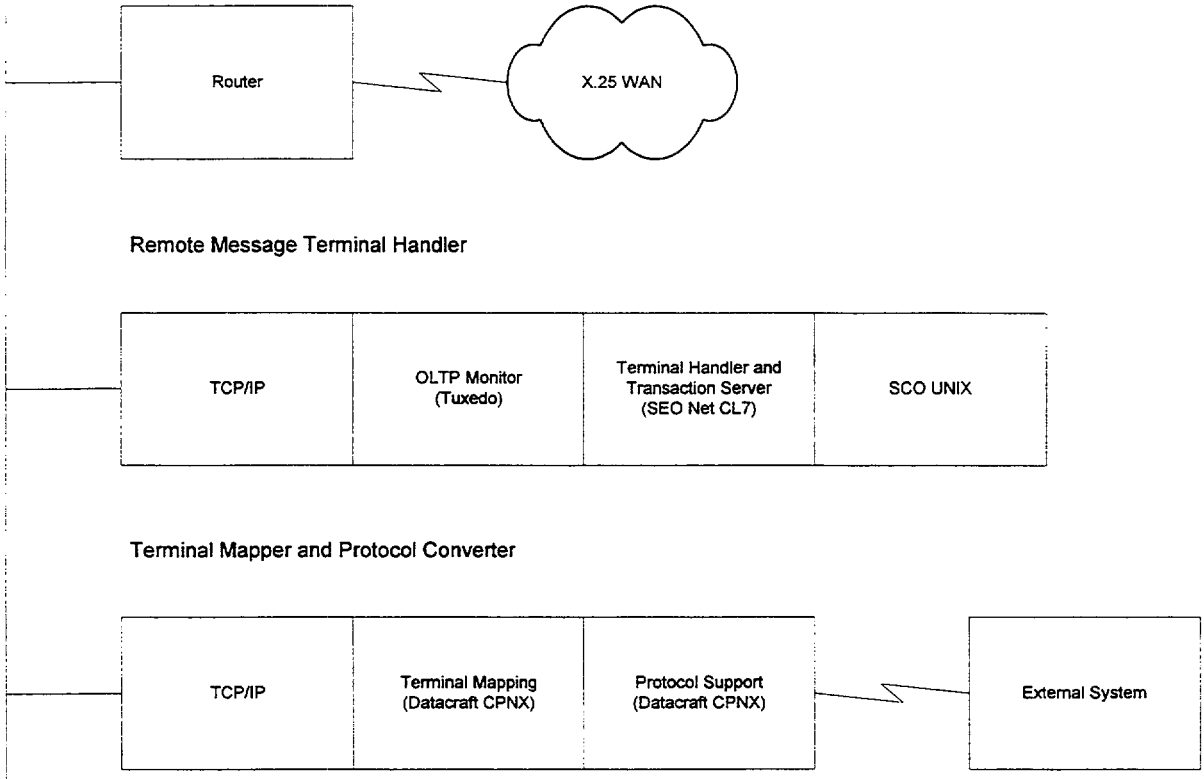

Figure 5056–5. Example of Site Overview Diagram (Remote Site)

Subject	Type	Procedure
Unit Test	Identifier	P–5101
	Effective Date	October 1997
	Revision No.	

Approval C E Fitzgerald
CISSCO Program Director

1. PURPOSE

This procedure specifies how to execute a unit test plan. The desired outcome of executing a unit test plan is to certify that the unit behaves as specified, either from a functional point of view or from a path sequence point of view, depending on the type of unit test specified.

2. APPLICABILITY

This procedure applies to all NRC projects subject to the SDLCM Methodology.

Unit test plans must be developed for all new software units and all software units that have been modified in any way (such as being enhanced or fixed).

Unit test plans are typically created and executed by technical staff responsible for designing and implementing software units.

3. REFERENCE PUBLICATIONS

- *SDLCM Methodology Handbook*

4. PROCEDURE

4.1 Process Flow Diagram

The unit test procedure consists of those steps identified in Figure 5101–1.

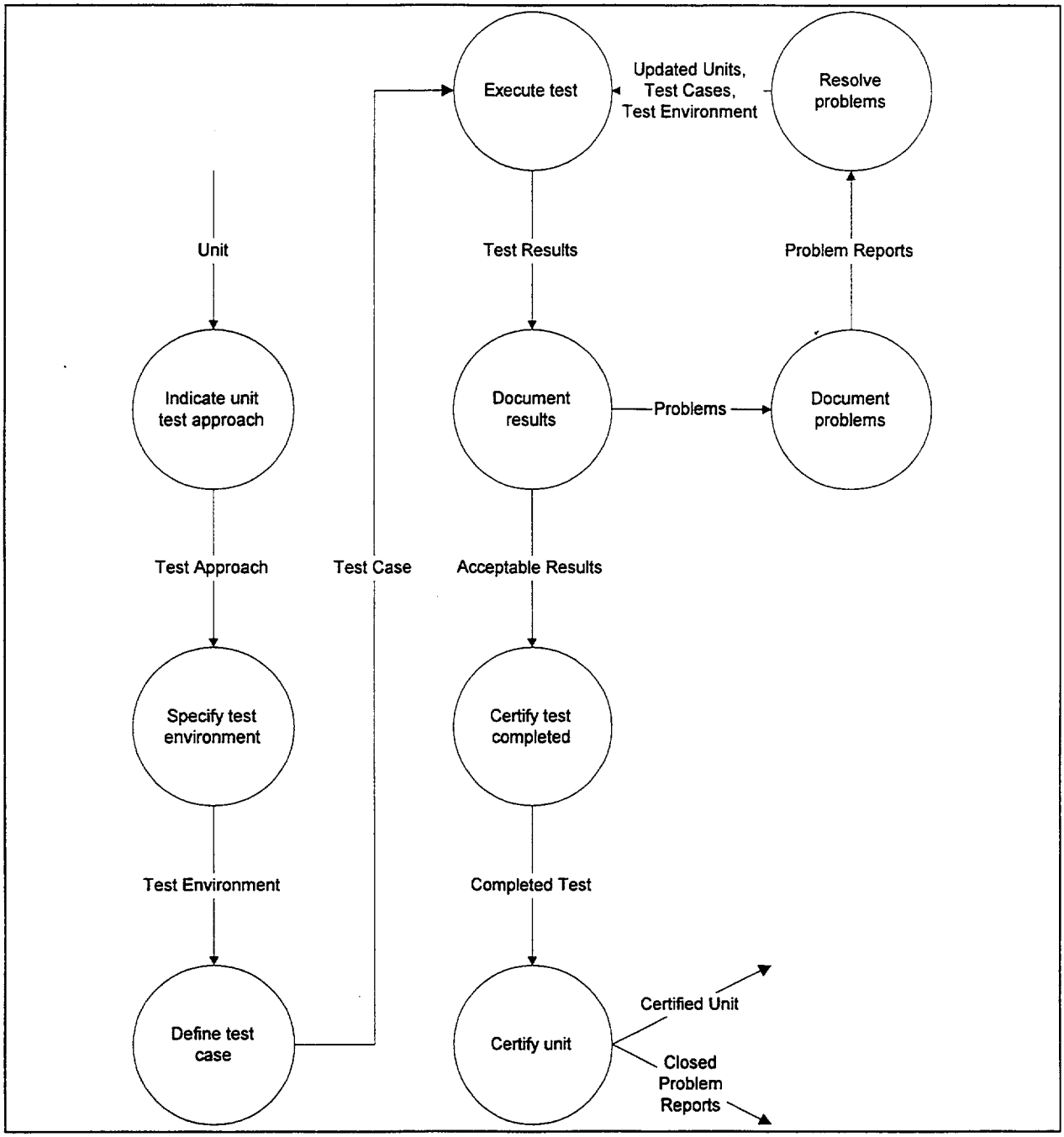

Figure 5101–1. Unit Test Procedure

4.2 Entry Criteria

The following input are necessary to begin this procedure:

- the unit

The following triggers are necessary to begin this procedure:

- the unit is ready to be tested, as determined by the developer of the unit

4.3 Steps

1. Document the type of unit test approach to be used for the unit: functional or path testing.
2. Identify the unit test execution environment, including drivers, stubs, and tools to be used and the nonstandard hardware or configuration setup required.
3. Define the test case. Document the identification of the function or path to be tested, the input to the test case, and the expected results. for test cases that are complicated to perform, document the steps required to execute the test case. in situations where it is not feasible to execute certain functions or paths (for example, due to hardware exception cases or event sequence timing), document those cases and explain why they cannot be tested.
4. Execute the unit test by performing the steps of the unit test.
5. Document the unit test results in the unit test log.
6. Document problems—if unexpected results occur—in a problem report.
7. Resolve test problems, that is, fix any problems with the test procedure, software, or environment.
8. Certify that the test was completed successfully. Provide a means for the test certifier (typically a peer of the tester) to check off or initial individual test cases to certify that the expected results were obtained.
9. Certify the unit, that is, provide a means for QA to certify the unit.

4.4 Exit Criteria

Results of the unit test are:

- All problems have been resolved
- The test results have been certified.

Outputs of the unit test procedure are:

- Certified unit
- Closed problem reports

4.5 Verification

Quality assurance (QA) verifies that the unit test has been performed and all problems resolved.

4.6 Roles

Table 5101–1 specifies the roles and responsibilities for each of the steps in the unit test procedure.

Table 5101–1. Unit Test Step-Role Table

Steps	Tester	Test Certifier	QA
1. Identify the unit to be tested.	P		
2. Document the type of unit test approach to be used.	P		
3. Identify the unit test execution environment.	P		
4. Define the test case, including the input, function or path to be tested, and the expected results.	P		
5. Execute the unit test.	P		
6. Document the unit test results in the unit test log.	P		
7. Document problems, if any, in a problem report.	P		
8. Resolve test problems.	P		
9. Certify test is complete.		P	
10. Certify unit.			P

Legend: P=Performs, R=Reviews, A=Approves, S=Supports

Subject	Type	Procedure
Site Acceptance and Operations Testing	Identifier	P–5141
	Effective Date	October 1997
	Revision No.	

Approval C E Fitzgerald
CISSCO Program Director

1. PURPOSE

This procedure specifies how to execute site acceptance and operations testing procedures. The desired outcome of executing these procedures is to certify that the system behaves as specified in the Product Definition and Analysis Document and in the User Guides.

2. APPLICABILITY

This procedure applies to all NRC projects subject to the SDLCM Methodology. Site acceptance and operations testing procedures must be developed for all new systems and all systems that have been modified in any way (such as being enhanced or fixed). Site acceptance and operations testing procedures are typically created and executed by technical staff responsible for the verification and validation of system requirements, and observed by the actual user.

3. REFERENCE PUBLICATIONS

The following publications contain related information:

- *SDLCM Methodology Handbook*
- SDLCM Methodology Procedure P–2141, Operational Readiness Review
- SDLCM Methodology Standard S–5151, Test Plan

4. PROCEDURE

4.1 Process Flow Diagram

The site acceptance and operations testing procedure consists of those steps identified in Figure 5141–1.

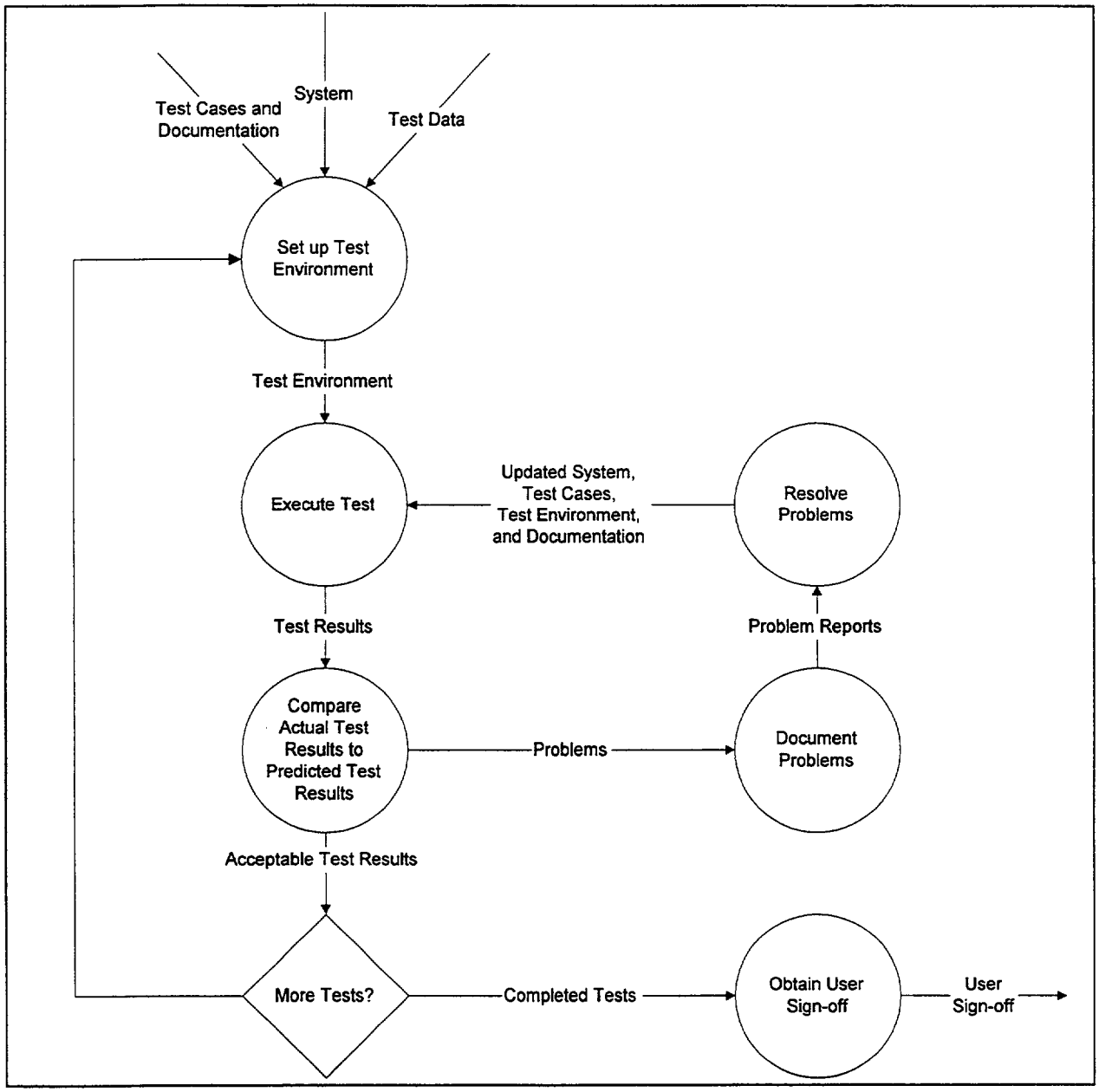

Figure 5141–1. Site Acceptance and Operations Testing Procedure

4.2 Entry Criteria

The following input are necessary to begin this procedure:

- The system installed
- Test cases and documentation, including
  - ◊ System requirements (identified in the Product Definition and Analysis)

- ◊ Requirements to Test Case Traceability Matrix
- ◊ User Manuals

- Test Data

The following trigger is necessary to begin this procedure:

- The system has been successfully installed and is ready for acceptance testing.

4.3 Steps

For each test in the test suite (including regression tests to be performed after all individual site acceptance tests):

1. Set up the test environment.
2. Execute the test.
3. Document the actual test results and compare them to the predicted results.
4. Document problems—if unexpected results occur—in a problem report.
5. Resolve test problems, that is, fix any problems with the test procedure, predicted results, test data, software, or environment.
6. Obtain user sign-off that the system is acceptable.

4.4 Exit Criteria

Results of the site acceptance and operations testing procedures are:

- All problems have been resolved.
- The customer is satisfied with the system.

Outputs of the site acceptance and operations testing procedures are:

- A system that works as specified.
- Customer sign-off

4.5 Verification

Quality Assurance (QA) verifies that the site acceptance and operations testing procedures have been performed and all problems resolved.

4.6 Roles

Table 5141–1 specifies the roles and responsibilities for each of the steps in the site acceptance and operations testing procedures.

Table 5141–1. Site Acceptance and Operations Testing Step-Role Table

Steps	Tester	QA	User or Customer
1. Set up the test environment.	P		R
2. Execute the test.	P		R
3. Document the test results and verify that they agree with the predicted test results.	P		R
4. Document problems, if any, in a problem report.	P		R
5. Resolve test problems.	P		R
6. Ensure customer satisfaction by obtaining user sign-off.		P	A

Legend: P=Performs, R=Reviews, A=Approves, S=Supports

Subject	Type	Standard
Test Plan	Identifier	S–5151
	Effective Date	October 1997
	Revision No.	

Approval _____
CISSCO Program Director

A. PURPOSE

This standard specifies content and format requirements for the Test Plan.

B. APPLICABILITY

This standard applies to all SDLCM Methodology projects. It is used by those persons who write test plans based on the activities completed within Component 3, Design the Solution.

C. REFERENCE PUBLICATIONS

The following publications contain related information:

- *SDLCM Methodology Handbook*
- SDLCM Methodology Standard S–3051, Project Definition and Analysis Document
- SDLCM Methodology Standard S–3171, Logical Design Document
- SDLCM Methodology Standard S–3172, Physical Design Document

D. STANDARD

Testing may be mapped to three broad categories:

- Unit Testing—verifying the logic, computations, functionality, and error handling of a unit
- Integration Testing—verifying the internal integrity of a collection of units (called a module) and verifying the module's external interfaces with other modules, data files, and external input and output
- Qualification Testing—ensuring that the system satisfies its requirements

The following paragraphs describe the content of each section of the Test Plan. Delete those that do not apply, and add sections and subsections as appropriate to cover whatever range of testing is required to validate and verify the software and hardware requirements and design in a cost-effective manner.

1. INTRODUCTION

1.1 Background

Describe the design activities that occurred within Component 3 that generated the need for a test plan.

1.2 Objectives

Describe the objectives of this test plan.

1.3 Scope

Specify what this test plan covers and what it does not cover, based on the requirements and design developed within the Design the Solution Component of the SDLCM Methodology.

1.4 Assumptions

Specify any assumptions that are being made and the risks associated with those assumptions.

1.5 Applicable Documents

List any documents that apply.

2. APPROACH

Describe the approach that will be used to achieve the objectives stated in the introduction, including the following:

- Describe the levels of testing that will be addressed by this test plan.
  - ◊ Unit Testing
  - ◊ Integration Testing
  - ◊ Qualification Testing
- Describe the roles that will be involved at each level of testing.
  - ◊ Developers
  - ◊ Independent Test Team
  - ◊ Users
- Describe the testing methods that will be used.
  - ◊ Functional—to verify the functionality and correct interfacing of software components
  - ◊ Structural—to verify the correct implementation of the design by ensuring that each statement or logic path or software component is executed at least once

- ◊ Statistical—to verify that operational scenarios important to the user are exercised
- ◊ Regression—to verify that changes made to the software after initial testing have not adversely affected previously tested software

3. REQUIREMENTS MAPPING

Summarize the requirements to be tested and the test number to be used to test each requirement in a Table such as that shown in Table 5151-1. The requirements were first uniquely identified and numbered in the PDA Document. The design was traced to the requirements in the Logical Design Document. This traceability matrix maps the test cases back to the original requirements.

Table 5151-1. Requirements to Test Case Traceability Matrix

Requirement	Test Number
Requirement 1	Test 1
Requirement 2	Test 2
Requirement 3	Test 3

Use the following categories of requirements as a guide to ensure that the test coverage is complete and rigorous:

- Operating System and Platform Testing
  - ◊ Specify the testing required to verify the operating system requirements.
  - ◊ Specify the testing required to verify the hardware requirements.
- Database Testing
  - ◊ Specify any Database Management System (DBMS) installation and acceptance testing.
  - ◊ Specify physical schema testing, such as testing access mechanisms, integrity rules, security rules for views.
  - ◊ Specify database conversion and population testing.
  - ◊ Specify any database administration (DBA) testing required, such as account management, backups, performance monitoring, auditing, archiving, and database reorganization.
  - ◊ Specify schema testing, such as the following:
    - * Specify testing required to verify that each table, view, column, and index matches the physical schema in the design documentation or data dictionary.
    - * Specify testing required to confirm that the primary and foreign keys have been properly established and that uniqueness is enforced on primary and alternate keys.

        * Specify testing required to test all the data integrity rules implemented in the schema definition or associated triggers, including the entity, domain, and referential integrity rules.
        * Specify testing required to test the security rules using the accounts established for each type of user.
    ◊ Specify performance testing, including the following:
        * Specify testing required to confirm that database responses to critical queries are within required time limits. For distributed databases or database server architectures, measure response from the time a query is received from the network to the time the query response is delivered to the network. This measurement approach separates the impact of database components on response times from the impact of network and application components. To resolve slow response times encountered by these tests or any unit tests, tune the code or the access mechanism. Evaluate other tuning options recommended in the DBMS documentation.
        * Specify testing required to perform basic reliability, maintainability, availability (RMA) tests such as forward and backout recovery before the system is independently tested. These tests are usually completed during the DBMS acceptance test. The development DBA certifies the database, the DBMS, and all relevant internal software packages before they are released.

- Process Testing
    ◊ Specify testing required to established security requirements.
    ◊ Specify testing required to established performance requirements.
- User Interface Testing
    ◊ Specify testing required to verify data entry requirements.
    ◊ Specify testing required to verify display requirements.
    ◊ Specify testing required to verify dialog requirements.
    ◊ Specify testing required to verify screen requirements.
    ◊ Specify testing required to verify performance requirements.
- Integration Testing
    ◊ Specify testing required to verify data mapping and navigation to legacy systems and screens.
    ◊ Specify testing required to verify conversion requirements.
    ◊ Specify testing required to verify requirements for installing and integrating the system into the physical architecture and, therefore, into the enterprise as a whole.

- Network Testing
  - ◊ Specify testing required to verify that all locations that must be supported are adequately tested.
  - ◊ Specify testing required to verify network requirements.

4. TESTING

For each test to be performed, specify the following:

- Test number
- Test name
- Test level—unit, integration, or qualification
- Purpose of the test
- Step-by-Step procedures for conducting the test
- Test input
- Test environment
- Expected results
- Actual results (added during the testing phase)

4.1 Test 1

4.2 Test 2

4.N Test N

Subject	Type	Procedure
Conducting Site Surveys	Identifier	P–5202
	Effective Date	October 1997
	Revision No.	

Approval C E Fitzgerald
CISSCO Program Director

1. PURPOSE

This procedure specifies how to plan for and conduct a site survey to ensure that the target technology environment is ready to receive the solution module.

2. APPLICABILITY

This procedure applies to all NRC projects subject to the SDLCM Methodology which require the deployment of a solution module into a target environment. Validation of the environment is a required activity within the Component 5, Deploy the Solution.

3. REFERENCE PUBLICATIONS

The following publications contain related information:

- *SDLCM Methodology Handbook*
- *SDLCM Methodology Handbook*, Component 5, Deploy the Solution
- SDLCM Methodology Procedure P–2141, Operational Readiness Review

4. PROCEDURE

4.1 Process Flow Diagram

The Conducting Site Surveys procedure consists of those steps identified in Figure 5202–1.

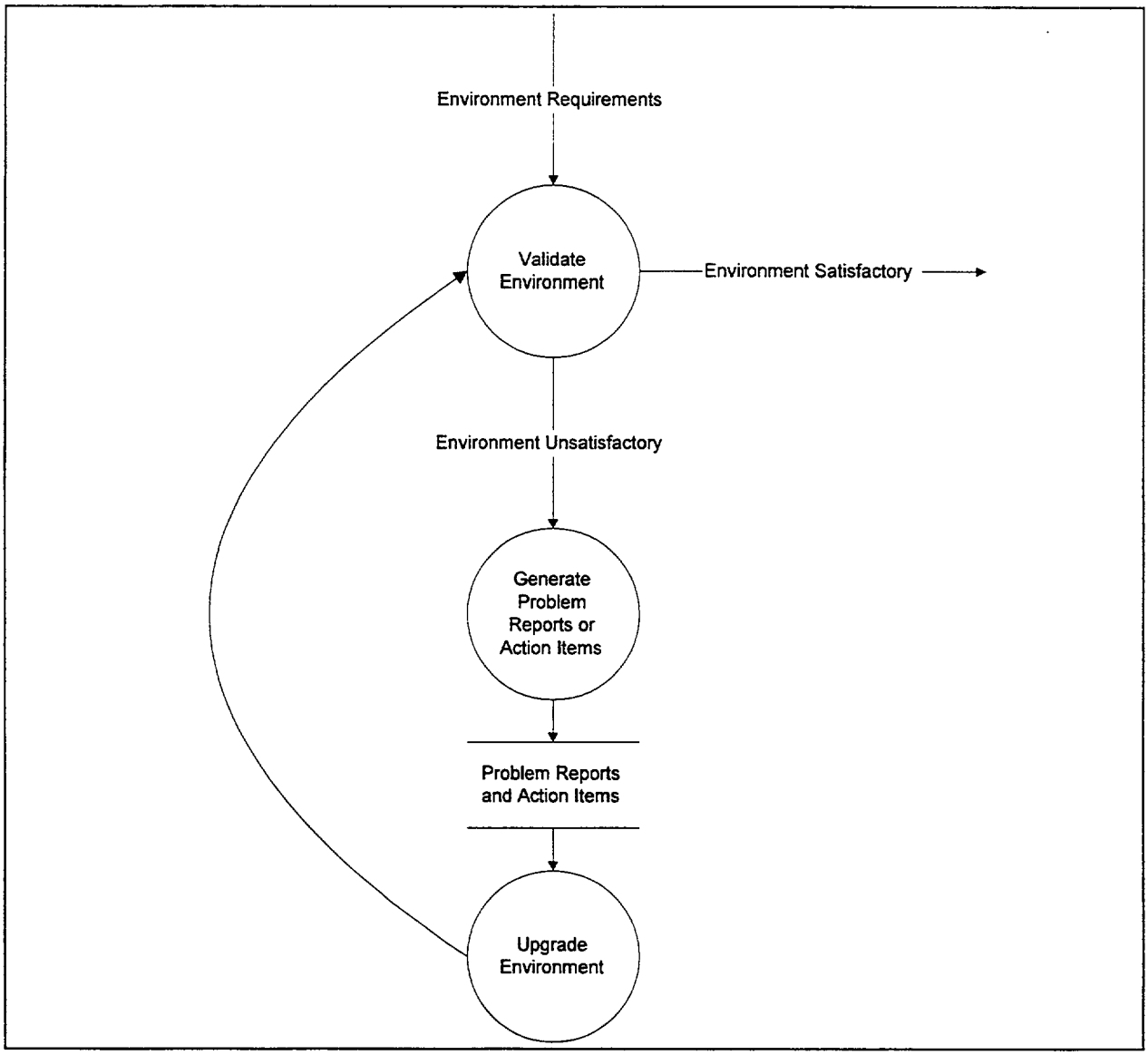

Figure 5202–1. Conducting Site Surveys Procedure

4.2 Entry Criteria

The following inputs are necessary to begin this procedure:

- The required target technology environment, including:
  - ◊ Hardware
  - ◊ Operating System
  - ◊ Software

The following triggers are necessary to begin this procedure:

- Target user capability upgrades have been completed

4.3 Steps

1. Validate the target environment against the environment requirements.
2. If the environment does not meet the requirements, then generate problem reports or action items, depending on the nature of the discrepancies.
3. Upgrade the environment, as required.

4.4 Exit Criteria

The outputs of the Conducting Site Surveys procedure are:

- Problem Reports
- Action Items
- Completed target user capability upgrades

The desired result of conducting the site survey is a:

- Validated target environment

4.5 Verification

Quality Assurance (QA) verifies that the site survey has been performed and all problems resolved.

4.6 Roles

Table 5202–1 specifies the roles and responsibilities for each of the steps in the Conducting Site Surveys procedure.

Table 5202–1. Unit Test Step-Role Table

Steps	Project Manager	Site Surveyor	System Adminis-trator
Validate environment and revalidate the environment if additional upgrades are required.	R	P	P
Generate action items and problem reports, as necessary to upgrade the target environment.	A	P	P
Upgrade the target environment.	A		P

Legend: P=Performs, R=Reviews, A=Approves, S=Supports

System Development and Life-Cycle Management (SDLCM) Methodology

Subject	Type	Standard
Installation Instructions	Identifier	S–5252
	Effective Date	November 1998
	Revision No.	1

Approval C E Fitzgerald
CISSCO Program Director

A. PURPOSE

This standard specifies content and format requirements for SDLCM Methodology Installation Instructions.

B. APPLICABILITY

This standard applies to all NRC projects, subject to the SDLCM Methodology, that plan to develop and deploy a new, upgraded, or migrated data processing system or software application.

This standard is used by those persons who create, update, review, and approve the Installation Instructions for deployable systems.

C. REFERENCE PUBLICATIONS

The following publications contain related information:

- *SDLCM Methodology Handbook*, Component 4, Engineer the Solution
- *SDLCM Methodology Handbook*, Component 5, Deploy the Solution
- SDLCM Methodology Standard S–5051, Tactical Integration Plan
- SDLCM Methodology Procedure P–2141, Operational Readiness Review
- SDLCM Methodology Standard S–1056, Security Controls
- SDLCM Methodology Procedure P–5141, Site Acceptance and Operations Testing
- SDLCM Methodology Standard S–5151, Test Plan

D. STANDARD

The Installation Instructions document provides a detailed description of the activities involved in the installation of a new or enhanced NRC system and the equipment resources, both hardware and software, required for its support in the production environment.

The Installation Instructions may be provided as an appendix to the Tactical Integration Plan instead of as a separate document.

The following paragraphs describe the content of each section of the Installation Instructions. In preparing the system installation instructions, retain those subsections which do not apply, providing a brief statement as to why they are not applicable. Add other topics necessary to

provide a complete picture of the planning elements. When appropriate, reference other documents and plans rather than repeating material unnecessarily. Summarize important material, as needed, to clarify or emphasize special aspects of the plan.

1. INTRODUCTION

Briefly describe the purpose of the installation instructions.

1.1 Objectives

Describe the capability that will exist after the installation of the deployed system and its support resources.

1.2 Scope

Identify the activities that mark the beginning and end of the installation. Describe any installation activities not covered by these instructions.

1.3 Assumptions

Identify any assumptions concerning installation of the system, including those related to the qualifications of the installation personnel.

1.4 Applicable Documents

List the documents that support the Installation Instructions or that provide additional information about the various activities included, such as the project's Tactical Integration Plan, hardware and software installation and maintenance manuals and procedures for the support environment; test requirements and plans; training materials; facility and security plans; problem resolution procedures; and applicable project schedules.

2. APPROACH

Describe the strategy for accomplishing installation and cutover of the system being deployed. Identify the high-level activities included in this strategy and the organizations involved and their responsibilities. Describe how coordination will be maintained among these organizations. Clearly identify the date or activity that concludes the installation process and signals readiness for cutover to the new system.

3. GENERAL INSTALLATION INSTRUCTIONS

Identify the system or system release being installed. Summarize the system's function and the context in which it operates, including its external interfaces.

3.1 Special Considerations

State any special conditions, such as the need for parallel operations with an existing system, availability of interfacing systems, readiness of the facilities, that could affect the implementation of the installation instructions.

3.2 Installation Considerations

State the considerations that must be met during system installation. The following considerations are typical of what needs to be addressed:

- Hardware or software to be installed
- State of readiness required at each operational support site
- Physical, security, and safety restrictions for hardware, software, or personnel entering each facility
- Preshipment checkout of hardware, software, or data
- Special shipping, packaging, or delivery needs
- Special communication needs
- Configuration and data management needs
- Engineering support needs
- How and where acceptance testing is to be performed
- Hardware and software acceptance criteria
- Certifications or inspections to be performed
- Simulation requirements for external interfaces
- Staff training needs for acceptance testing, operations, and maintenance
- Required date by which cutover must be complete
- Problem reporting and tracking

3.3 Installation Milestones

Include, or refer to the TIP for, the installation milestone schedule. Identify the major hardware and software transitions and other associated activities, such as acceptance testing. Indicate any site preparation milestones that can affect installation activities.

3.4 Interfaces

Describe the system's interfaces and the transitions that will be made over the course of installation. List the hardware and software configuration changes that must be accomplished to support these transitions. Identify the organizations responsible for the various interfaces.

3.5 Problem Identification and Resolution

Refer to the project's problem reporting and tracking procedures. Identify any deviations from the standard process applicable to the installation and cutover of the system.

4. SPECIFIC INSTALLATION INSTRUCTIONS

Provide the step-by-step installation instructions or procedures to complete each major installation activity. Identify any differences in an instruction that apply to various operational sites. If these differences are significant, prepare site-specific instructions for the given installation activity. As a starting point, consider preparing instructions for each of the following activities:

- Installation of the support environment (hardware and software) at each support site. This may require multiple instructions, each specific to a site.
- Receipt and identification of the project's executable software for each support site, including any batch files, command files, data files, or other software files needed to install and operate the software on its target computer(s).
- Receipt and identification of the source files to transition to each support site, including any batch files, command files, data files, or other files needed to regenerate the executable software.
- Verification of the version records of the software prepared for each support site.
- Installation of the deliverable software in the support environment at each site.
- Verification of the deliverable software in the support environment at each site. These instructions may refer to the acceptance test procedures if appropriate.
- Participation with the developer in demonstrating to the acquirer that the deliverable software can be regenerated and maintained using commercially available, acquirer-owned, or contractually deliverable software and hardware.
- Participation in an Operational Readiness Review, a joint software supportability technical and management review, for cutover at each site.

Include the information below in the instruction or procedure for each installation activity.

4.1 Installation Instruction for Activity 1

Identify the activity and the schedule for its completion.

4.1.1 INSTALLATION ACTIVITY 1 STARTUP

Clearly identify the event that triggers the activity startup and any inputs required for completion of the steps of the activity.

4.1.2 INSTALLATION ACTIVITY 1 STEPS

Clearly describe each step to be perfumed, its dependency on the successful completion of any previous steps, and the person(s) (by role, not name) responsible for completing the step. Remember to include the steps needed to verify that the status of the installation at the completion of, or during, the performance of the activity.

The steps may be enumerated in a list and the roles included in an activity–role table. Table 5252–1 is an example of such a table.

Table 5252–1. Example of an Activity–Role Table

Activities	Receiving Clerk	Quality Assurance	Installation Technicians	Installation Manager
Receive support environment hardware at operational site	P*			
Perform receiving inspection of support environment hardware	P	R		A
Certify support environment hardware		P		A
Move support environment hardware from receiving to the room where support environment to be installed.	P		R	

* P = Performs, R = Reviews, A = Approves

4.1.3 INSTALLATION ACTIVITY 1 COMPLETION

Clearly describe the step or milestone that indicates completion of Installation Activity 1. Identify the results of completing Installation Activity 1 and any outputs of the activity.

4.n Installation Instruction for Activity n

Provide an installation instruction in the same format for each additional installation activity as for activity 1.

Operational Support
Series 6000

Subject	Type	Standard
User Guide	Identifier	S–6051
	Effective Date	November 1998
	Revision No.	1

Approval C E Fitzgerald
CISSCO Program Director

A. PURPOSE

This standard specifies content and format requirements for the User Guide.

B. APPLICABILITY

This standard applies to all SDLCM Methodology Projects. It is used by those persons responsible for developing the User Guide.

C. REFERENCE PUBLICATIONS

The following publications contain related information:

- *SDLCM Methodology Handbook*
- SDLCM Methodology Standard S–7052, Integrated Education, Training, and Reference Materials Design Document

D. STANDARD

The User Guide provides guidance on how to use the new system effectively and efficiently.

The following paragraphs describe the content of each section of the User Guide.

1. INTRODUCTION

1.1 Background

Briefly describe the project from the point of view of the user.

1.2 Objectives

Describe the objectives of establishing the User Guide. For example, the user guide shows users how to execute each function of the system.

1.3 Scope

1.3.1 IDENTIFICATION

Fully identify the system and the software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

1.3.2 SYSTEM OVERVIEW

Briefly state the purpose of the system and the software to which this document applies. Describe the general nature of the system and software; summarize the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

1.4 Assumptions

Specify any assumptions about the User Guide.

1.5 Applicable Documents

List the number, title, revision, and date of all documents referenced in this manual. Also identify the source for all documents not available through normal Government stocking activities.

Note that documents cited in the text should be listed in the References section at the end of the document.

2. SOFTWARE SUMMARY

2.1 Software Organization and Overview of Operation

Provide a brief description of the organization and operation of the software from the user's point of view. Include, as applicable:

- Logical components of the software, from the user's point of view, and an overview of the purpose and operation of each component
- Performance characteristics that can be expected by the user, such as:
  - ◊ Types, volumes, rate of inputs accepted
  - ◊ Types, volume, accuracy, rate of outputs that the software can produce
  - ◊ Typical response time and factors that affect it
  - ◊ Typical processing time and factors that affect it
  - ◊ Limitations, such as number of events that can be tracked
  - ◊ Error rate that can be expected
  - ◊ Reliability that can be expected
- Relationship of the functions performed by the software with interfacing systems, organizations, or positions
- Supervisory controls that can be implemented (such as passwords) to manage the software

2.2 Contingencies and Alternate States and Modes of Operation

Explain differences in what the user will be able to do with the software at times of emergency and in various states and modes of operation, if applicable.

2.3 Security and Privacy

Provide an overview of the security and privacy considerations associated with the software. Include a warning regarding making unauthorized copies of software or documents, if applicable.

2.4 Assistance and Problem Reporting

Identify points of contact and process to be followed to obtain assistance.

3. ACCESS TO THE SOFTWARE

Provide a step-by-step procedure oriented to the first-time or occasional user. Present enough detail so that the user can reliably access the software before learning the details of its functional capabilities. Include safety precautions, marked by WARNING or CAUTION, where applicable.

3.1 First-Time User of the Software

Describe the following as appropriate:

- Process for turning on power and making adjustments
- Dimensions and capabilities of the visual display screen
- Appearance of the cursor, how to identify an active cursor if more than one cursor can appear, how to position a cursor, and how to use a cursor

- Keyboard layout and role of different types of keys and pointing devices
- Process for turning power off if special sequencing of operations is needed

3.2 Initiating a Session

Provide a step-by-step procedure for beginning work, including any options available. Include a checklist for problem determination in case difficulties are encountered.

3.3 Stopping and Suspending Work

Describe how the user can cease or interrupt use of the software and how to determine whether normal termination or cessation has occurred.

4. PROCESSING REFERENCE GUIDE

Describe how to use the software. If the process is complicated or extensive, additional sections (5, 6, 7, etc.) may be added in the same paragraph structure as this section and with titles meaningful to the sections added. The organization of the document will depend on the characteristics of the software being documented. For example, one approach is to base the sections on the organizations in which users work, their assigned positions, their work sites, or the tasks they must perform. For other software, it may be more appropriate to have Section 5 be a guide to menus, Section 6 be a guide to the command language used, and Section 7 be a guide to functions. Present the detailed process in subparagraphs of Paragraph 4.3. Depending on the design of the software, the subparagraphs might be organized on a function-by-function, menu-by-menu, transaction-by-transaction, or other basis. Include safety precautions, marked by WARNING or CAUTION, where applicable.

4.1 Capabilities

Briefly describe the interrelationships of the transactions, menus, functions, or other processes in order to provide an overview of the use of the software.

4.2 Conventions

Describe any conventions used by the software, such as the use of colors in displays, the use of audible alarms, the use of abbreviated vocabulary, and the use of rules for assigning names or codes.

4.3 Processing Procedures

Explain the organization of subsequent paragraphs, for example, by function, by menu, by screen. Describe any necessary order in which the activities must be performed.

4.3.*n* (ASPECT OF SOFTWARE USE)

Identify the function, menu, transaction, or other process being described in the title of this paragraph. Describe and give options and examples, as applicable, of menus, graphical icons, data entry forms, user inputs, inputs from other software or hardware that may affect the software's interface with the user, outputs, diagnostic or error messages or alarms, and help facilities that can provide on-line descriptive or tutorial information. Adapt the format for presenting this information to the particular characteristics of the software, but use a consistent style of presentation; that is, the descriptions of menus must be consistent, the descriptions of transactions must be consistent among themselves.

4.4 Messages

List, or refer to an appendix that lists, all error messages, diagnostic messages, and information messages that can occur while accomplishing any of the user's functions. Identify and describe the meaning of each message and the action that must be taken in response to each such message.

4.5 Quick-Reference Guide

If appropriate to the software, provide or reference a quick-reference card or page for using the software. Summarize, as applicable, frequently used function keys, control sequences, formats, commands, or other aspects of software use.

APPENDIXES

Use appendixes to provide information published separately for convenience in document maintenance (for example, charts and classified data). As applicable, reference each appendix in the main body of the document where the data would normally have been provided. If an appendix is lengthy, bind it as a separate document for ease in handling. Letter appendixes alphabetically (A, B, etc.).

ACRONYMS

List and define all acronyms used in the User Guide.

REFERENCES

List all cited references.

System Development and Life-Cycle Management (SDLCM) Methodology

Subject	Type	Standard
On-line Help Systems and Tutorials	Identifier	S–6052
	Effective Date	October 1997
	Revision No.	

Approval C E Fitzgerald
CISSCO Program Director

A. PURPOSE

This standard specifies content and format requirements for the On-line Help Systems and Tutorials.

B. APPLICABILITY

This standard applies to all NRC projects which develop systems to be supported with on-line help systems and tutorials. It is used by those persons responsible for developing on-line help systems and tutorials.

C. REFERENCE PUBLICATIONS

The following publications contain related information:

- *SDLCM Methodology Handbook*
- SDLCM Methodology Standard S–7052, Integrated Education, Training, and Reference Materials Design Document

D. STANDARD

The On-line Help Systems and Tutorials Document is a brief overview of the on-line help available to the user and the tutorials that are also available.

The following paragraphs describe the content of each section of the On-line Help and Tutorials Document.

1. INTRODUCTION

1.1 Background

Briefly describe the project from the point of view of the need for on-line help systems and tutorials.

1.2 Objectives

Describe the objectives of establishing on-line help systems and tutorials. Examples include:

- Providing on-line help to enable users to solve most of their own problems, instead of relying on large support staffs
- Providing on-line tutorials to enable users to train themselves in the use of a system instead of requiring extensive training programs

1.3 Scope

Describe the scope of the on-line help system and tutorials. Describe what these systems cover and what they do no cover.

1.4 Assumptions

Specify any assumptions about the on-line help systems and tutorials, such as familiarity with Windows 95.

1.5 Applicable Documents

List all relevant documents associated with the establishment of the on-line help systems and tutorials. Note that documents cited in the text should be listed in the References section at the end of the document.

2. APPROACH

Describe the approach that will be used to achieve the objectives stated in the introduction.

3. ON-LINE HELP SYSTEMS

Specify what, if any, on-line help systems are to be developed for this project.

Specify the audience for these help systems, for example, users, operators, and maintainers.

Specify how on-line help will be accessed, for example, through a table of contents, through an index, or through a search engine. Specify how the user will navigate through the help available.

Specify all topics to be covered by the on-line help system.

4. TUTORIALS

Specify what, if any, on-line tutorials exist for this project, and what roles they are intended for: for example, users, operators, and maintainers.

Specify how tutorials will be accessed.

Specify any prerequisite knowledge required to be able to learn from the tutorials.

ACRONYMS

List and define all acronyms used in the training plan.

REFERENCES

List all cited references.

Subject	Type	Standard
Operational Support Guide	Identifier	S–6151
	Effective Date	October 1997
	Revision No.	

Approval _____
CISSCO Program Director

A. PURPOSE

This standard specifies content and format requirements for the Operational Support Guide.

B. APPLICABILITY

This standard applies to all SDLCM Methodology Projects that require operational support. It is used by those persons responsible for developing the Operational Support Guides.

C. REFERENCE PUBLICATIONS

The following publications contain related information:

- *SDLCM Methodology Handbook*
- SDLCM Methodology Standard S–7052, Integrated Education, Training, and Reference Materials Design Document

D. STANDARD

The Operational Support Guide provides guidance to operators and system support personnel on how to support users by performing specific tasks in a timely manner. It includes not only servicing users on an event-driven basis, but also performing some tasks periodically.

The following paragraphs describe the content of each section of the Operational Support Guide.

1. INTRODUCTION

1.1 Background

Briefly describe the project from the point of view of the need for operational support.

1.2 Objectives

Describe the objectives of providing operational support. Examples include supporting users by:

- Mounting and unmounting tapes
- Providing printouts
- Performing periodic backups of files

1.3 Scope

Describe the scope of the activities to be performed by operators.

1.4 Assumptions

Specify any assumptions about the Operational Support Guide.

1.5 Applicable Documents

List all relevant documents associated with the establishment of the Operational Support Guide. Note that documents cited in the text should be listed in the References section at the end of the document.

2. APPROACH

Describe the approach that will be used to achieve the objectives stated in the introduction. For example, if some tasks are to be shared responsibilities among users, state so. If other tasks are the specific domain of support personnel, state so.

3. OPERATIONAL SUPPORT GUIDANCE

Specify activities and roles required to provide operational support to users.

Group activities in terms of:

- Daily disciplines
- Weekly disciplines
- Monthly disciplines
- Ad hoc requests
- Emergency (event-driven) activities

Specify the roles responsible for accomplishing each of the activities.

3.1 Software Inventory

Identify all software files, including databases and data files, that must be installed for the software to operate. Include security and privacy considerations for each file and identification of the software necessary to continue or resume operation in case of an emergency.

3.2 Software Environment

Identify the hardware, software, manual operations, and other resources needed for support personnel to install and run the software. Include, as applicable:

- Computer equipment that must be present, including amount of memory needed, amount of auxiliary storage needed, and peripheral equipment such as printers and other input/output devices
- Communications equipment that must be present
- Other software that must be present, such as operating systems, databases, data files, utilities, and other supporting systems
- Forms, procedures, or other manual operations that must be present
- Other facilities, equipment, or resources that must be present

3.3 Access control

Present an overview of the access and security features of the software that are visible to support personnel. Include the following items as applicable:

- How and from whom to obtain a password
- How to add, delete, or change passwords
- Security and privacy considerations pertaining to the storage and marking of output reports and other media that the user will generate

3.4 Installation and setup

Describe any procedures that support personnel must perform to be identified or authorized to access or install software on the equipment, to perform the installation, to configure the software, to delete or overwrite former files or data, and to enter parameters for software operation.

3.5 Related Processing

Identify and describe any related batch, off-line, or background processing performed by the software that is not invoked directly by support personnel and is not described above. Specify any support personnel responsibilities to support this processing.

3.6 Data Backup

Describe procedures for creating and retaining backup data that can be used to replace primary copies of data in event of errors, defects, malfunctions, or accidents.

3.7 Recovery from Errors, Malfunctions, and Emergencies

Present detailed procedures for restart or recovery from errors or malfunctions occurring during processing and for ensuring continuity of operations in the event of emergencies.

ACRONYMS

List and define all acronyms used in the Operational Support Guide.

REFERENCES

List all cited references.

Training
Series 7000

Subject	Type	Standard
Integrated Education, Training, and Reference Materials	Identifier	S–7052
	Effective Date	October 1997
	Revision No.	

Approval C E Fitzgerald
CISSCO Program Director

A. PURPOSE

This standard specifies content and format requirements for the Integrated Education, Training, and Reference Materials.

B. APPLICABILITY

This standard applies to all SDLCM Methodology projects. It is used by those persons who design the training materials for users of the system being developed.

C. REFERENCE PUBLICATIONS

The following publications contain related information:

- *SDLCM Methodology Handbook*
- SDLCM Methodology Standard S–3051, Project Definition and Analysis Document
- SDLCM Methodology Standard S–3171, Logical Design Document
- SDLCM Methodology Standard S–3172, Physical Design Document

D. STANDARD

Use the Integrated Education, Training, and Reference Materials to summarize the results of the training design activities of SDLCM Methodology Component 3 into an organized and logically flowing deliverable. The following paragraphs describe the content of each section.

1. INTRODUCTION

1.1 Background

Describe what documents have been produced up to this point that will contribute to the design of the training materials. Include the Project Definition and Analysis Document (which includes the System Operations Concepts), the Logical and Physical Design Documents, the results of data and process analysis, and the user interface information, including screen and report designs.

1.2 Objectives

Describe how the Integrated Education, Training, and Reference Materials will be used as a plan to produce training and reference materials that will be used to train users of the system under development.

1.3 Scope

Describe what this product covers and what it does not cover. For example, if an understanding of the Enterprise Model is required by the user, state that this is to be covered in the training materials.

1.4 Assumptions

State any assumptions that have been made about the users' knowledge that would have an impact on the design of the training materials. For example, if the current system requires a knowledge of Sequential Query Language (SQL) and it is assumed that all users will already be familiar with this language and that this will not be covered explicitly in the training materials, state this.

1.5 Applicable Documents

List any documents that apply.

2. APPROACH

Describe the approach that will be used to train the users of the system. For example, if classroom instruction with hands-on exercises will be used, state so. If users will be responsible for training themselves through the use of Computer-Based Training (CBT) or tutorials, user's guides, and reference materials, state so.

3. EDUCATIONAL MATERIALS

Specify what general educational materials are required for the user to understand the role they are playing as well as how their individual work fits into the overall information management system of which this individual system is a part.

General educational materials might include the following:

- Enterprise Model—for a general understanding of how the current system fits into the enterprise as well as how it relates to any other systems that are part of the enterprise
- Systems Operations Concepts—including functional, performance, and operational concepts
- Logical Design—which may deal with entities, their definitions, and relationships to other entities
- Physical Design—which may include a description of the tables, keys, and fields within those tables
- User Interface Concepts—that will help the user understand the general paradigm of how the user inputs, processes, and outputs data
- Process Concepts—that may help the user understand any manual procedures that must be performed in addition to interacting with the computer to get the job done

4. TRAINING MATERIALS

Training materials refer to those specific materials that will enable the user to learn how to perform his or her specific role, in contrast to educational materials that are used to provide a more general understanding for problem solving capability development. Training materials focus specifically on skill-building. Training materials include:

- User Guides—which tell the user specifically how to perform certain functions
- Tutorials—which may lead the user through exercises that require specific inputs that result in predictable outputs
- Training Guides—which may have exercises for the student to practice on

5. REFERENCE MATERIALS

Specify those reference materials that are to be included as part of the Integrated Education, Training, and Reference Materials that will be required for the users to perform their jobs. Reference materials may include such documents as:

- A hardware operating manual
- An operating system manual, such as a UNIX reference manual
- Database application programmers manuals
- User guides of legacy systems that the current system interfaces with

System Development and Life-Cycle Management (SDLCM) Methodology

Subject	Type	Standard
User Training and Orientation Plan	Identifier	S–7053
	Effective Date	October 1997
	Revision No.	

Approval C E Fitzgerald
CISSCO Program Director

A. PURPOSE

This standard specifies content and format requirements for the User Training and Orientation Plan.

B. APPLICABILITY

This standard applies to all projects that are required to provide user training or orientation. It is used by those persons responsible for planning user training and orientation.

C. REFERENCE PUBLICATIONS

The following publications contain related information:

- *SDLCM Methodology Handbook*
- SDLCM Methodology Standard S-7052, Integrated Education, Training, and Reference Materials Design Document

D. STANDARD

The User Training and Orientation Plan provides a detailed plan for assessing the skills of users, providing training and orientation to enable users to operate the new system, specifying the budget and training schedule, and assessing the effectiveness of the training program.

The following paragraphs describe the content of each section of the User Training and Orientation Plan.

1. INTRODUCTION

Identify the applicable application system, define the scope of the training plan, specify applicable references to other project documents, and define any terms unique to this plan or the training process for the project.

1.1 Background

Briefly describe the application from the point of view of the training that is necessary to operate the new system or to understand the system in context with cohabiting systems or the enterprise.

1.2 Objectives

Describe the objectives of the training and orientation. For example, specify the functions that the user will be able to perform after the training is accomplished. Also, if a separate orientation course is to be provided, specify the understanding to be gained of the system and its interaction with other systems by attendees of the orientation course. For example, typically a separate orientation course may be provided for managers to understand the functions of their employees.

1.3 Scope

Describe the scope of the training plan, system elements covered by the training plan, and all organizations involved with implementing the training process.

1.4 Assumptions

Specify any assumptions about the training or orientation. For example, if it is assumed that attendees already have a certain expertise or familiarity with a certain operating system or software, state this. If prerequisites are required, state them.

1.5 Applicable Documents

List all relevant documents associated with the training process. Note that documents cited in the text should be listed in the References section at the end of the document.

2. APPROACH

Describe the approach that will be used to achieve the objectives stated in the introduction. For example, if formal training will be required, state so. If the approach will be to "train the trainer" and then use on-the-job training, state so.

3. PRE-TRAINING SKILLS ASSESSMENT

Describe the process for assessing user skills and for performing a job skills requirement assessment comparing each user's competencies with the major competencies required to

succeed. Perform this assessment before training users. Based on this assessment, specify the number of users who need to develop each competency.

4. TRAINING PROGRAM

Describe the training program in detail, that is, the methods, processes, responsibilities, budget, and schedule that will be implemented to prepare the users to perform the tasks.

4.1 Training Materials

Include a list and description of specific training materials developed for user training and orientation.

4.2 Training Methods

Include a list and description of specific training methods, such as formal courses, on-the-job-training, and computer-based training (CBT), that will be used to train all users.

4.3 Training Processes

Describe the policies, processes, standards, procedures, templates, and tools that support the execution of the training plan.

4.4 Training Responsibilities

Define the roles and responsibilities of management to ensure that user training is accomplished.

4.5 Training Budget

Specify the budget available for training.

4.6 Training Schedule

Describe the training schedule and a list of potential participants.

5. ASSESSING THE TRAINING PROGRAM

Describe the assessment processes and measures that will be used to evaluate the effectiveness of the specific training methods with respect to the user's ability to perform their tasks after they have received the training.

ACRONYMS

List and define all acronyms used in the User Training and Orientation Plan.

REFERENCES

List all cited references.

Reserved for Contractor Use
Series 8000

SDLCM Methodology Document Standards
Series 9000

Subject	Type	Procedure
SDLCM Methodology Change	Identifier	P–9001
	Effective Date	October 1997
	Revision No.	

Approval C E Fitzgerald
CISSCO Program Director

1. PURPOSE

This procedures establishes the mechanism for requesting changes to the SDLCM Methodology and its documentation set.

2. APPLICABILITY

This procedure applies to all requests for changes to the SDLCM Methodology. Any NRC personnel and any personnel from NRC contractor organizations may submit a change request (CR). CRs propose additions, deletions, or modifications to the methodology as reflected in the documentation set.

3. REFERENCE PUBLICATIONS

The following publications contain related information:

- *SDLCM Methodology Handbook*, Appendix A. Maintaining the SDLCM Methodology
- SDLCM Methodology Change Request Form, F–9001
- Configuration Control Board, Procedure P–2501

4. PROCEDURE

4.1 Data Flow Diagram

The SDLCM Methodology Change procedure has the five major steps identified in the data flow diagram shown in Figure 9001–1.

4.2 Entry Criteria

The following input is necessary to begin this procedure:

- A recognized need for an addition, deletion, or modification to the SDLCM Methodology or its documentation set

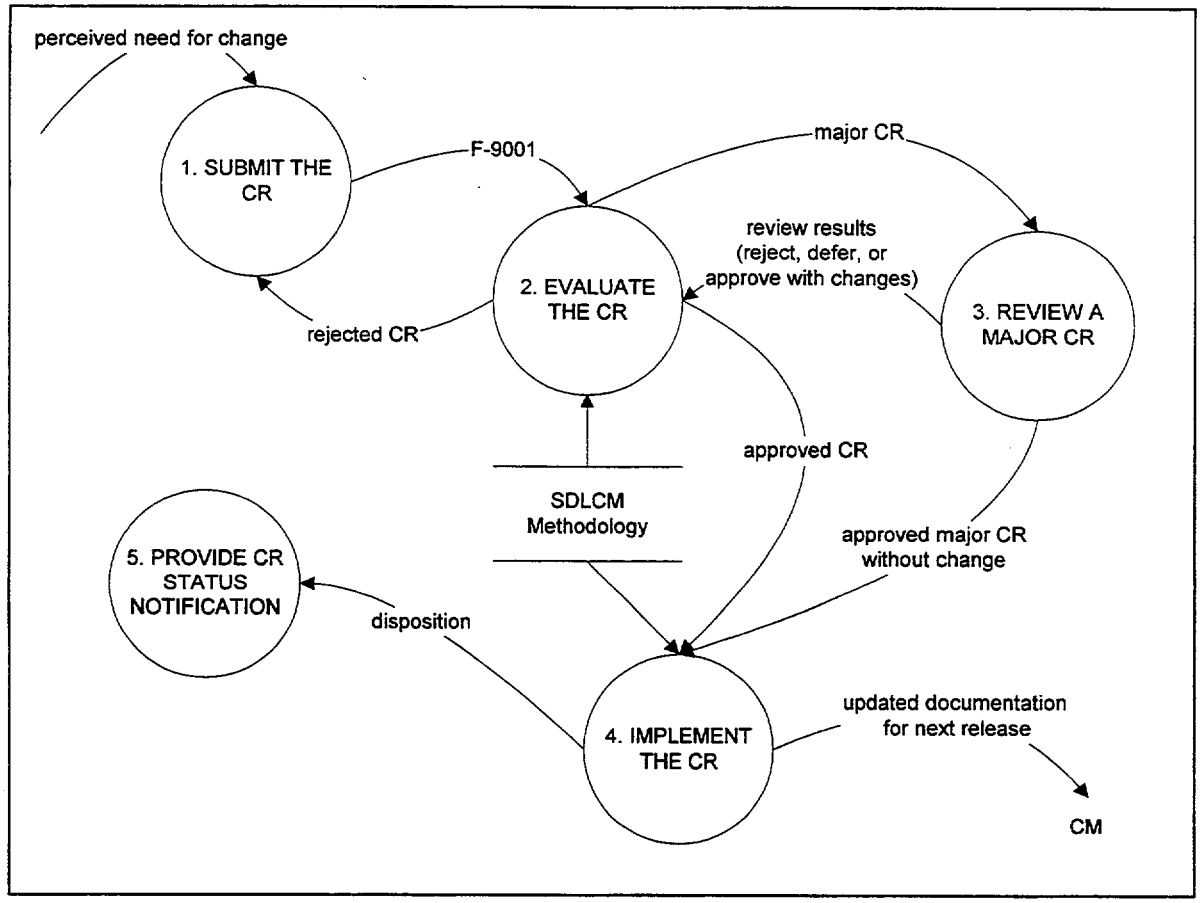

Figure 9001–1. SDLCM Methodology Change Data Flow Diagram

Any of the following events may trigger this procedure:

- A failure of the methodology to support a required activity
- An opportunity for process improvement
- The introduction of new technology

4.3 Steps

Perform the following steps:

1. Submit the Change Request

   Any NRC personnel and any personnel from NRC contractor organizations may submit a change request (CR). CRs propose additions, deletions, or modifications to the methodology as reflected in the documentation set.

   To request a change, use SDLCM Methodology Change Request Form F–9001. Complete all blocks under "Request Originator Information" and "Change Information."

For a CR that recommends a minor change to existing material, define the proposed change on a legible, annotated copy of the relevant page or pages. Use attachments to the form as necessary

For a CR that requests a major change to existing material or the development of new material, identify sources of information. Identify any NRC or contractor personnel or groups working on the subject matter or to which it may be applicable. Provide recommendations regarding scope, purpose, and content.

Submit the CR form to the SDLCM Methodology Team or to the NRC CISSCO Program Director for evaluation.

2. Evaluate the Change Request

   The SDLCM Methodology Team annotates the CR form with a sequence number and the date received, enters the request into a CR log, and examines the CR for completeness and clarity. Incomplete or unclear CRs are returned to the originator. A complete and clear CR is reviewed to determine the following:

   - Whether to implement the CR as submitted, implement it in part, or reject it
   - Estimated number of hours to implement
   - Priority of implementation

   A CR that has a major impact on the SDLCM Methodology or will require more than 100 hours to implement is sent to the SDLCM Methodology CCB for further review and approval (Step 3). A relatively minor change request is passed directly to Step 4 for implementation.

3. Review a Major Change Request

   The SDLCM Methodology CCB (see Procedure P–2501) reviews major CRs and provides the results of the review to the SDLCM Methodology Team for further disposition.

   If the CCB approves the request without change, it is passed to Step 4 for implementation. The CR is returned to Step 2 for further evaluation if the CCB (a) rejects the request, (b) defers implementation of the request to a later date, or (c) approves the request with changes.

4. Implement the Change Request

   The SDLCM Methodology Team coordinates the implementation of approved CRs. In many cases, the team forwards the CR to a person or group possessing the necessary expertise or experience (possibly the originator), and a schedule is established. The expert person or group develops text and supporting materials and submits them to the SDLCM Methodology Team. When the material is acceptable to the SDLCM Methodology Team, the team submits the material with a recommendation for approval to the SDLCM Methodology CCB. Approved material is published with the next release of the applicable portion of the SDLCM

Methodology documentation. Rejected material is returned to the team for further action.

5. Provide Change Request Status Notification

   The SDLCM Methodology Team notifies the requester of the final disposition of the CR.

   The status of all SDLCM Methodology CRs is maintained by the team and is available for review by all personnel.

4.4 Exit Criteria

The outputs of this procedure are:

- A completed SDLCM Methodology Change Request Form
- Materials required to update the methodology documentation set at the next release

The results of the procedure are:

- The SDLCM Methodology supports the implemented Change Request
- Alternatively, the originator understands why the change request was rejected

4.5 Verification

Quality Assurance personnel verify that this procedure is followed and that all outputs are filed. Configuration Management verifies that the SDLCM Methodology Team checks the methodology documentation set out of the controlled library and updates the controlled baseline.

4.6 Roles

Table 9001–1 depicts the roles responsible for each step in the SDLCM Methodology Change procedure.

Table 9001–1. SDLCM Methodology Change Step-Role Table

Steps / Roles:	Change Request Originator	SDLCM Methodology Team	SDLCM Methodology CCB	Expert (Person or Group)
Submit the CR	P			
Evaluate the CR		P		
Review a Major CR		S	P	
Implement the CR		S, R	A	P
Provide CR Status Notification		P		

Legend: P=Performs, R=Reviews, A=Approves, S=Supports

System Development and Life-Cycle Management (SDLCM) Methodology

Subject	Type	Standard
Content and Format of SDLCM Methodology Procedures	Identifier	S–9052
	Effective Date	October 1997
	Revision No.	

Approval C E Fitzgerald
CISSCO Program Director

A. PURPOSE

This standard specifies content and format requirements for NRC SDLCM Methodology procedures.

B. APPLICABILITY

This standard applies to all SDLCM Methodology procedures. It is used by all personnel who develop or review procedures.

C. REFERENCE PUBLICATIONS

The following publications contain related information:

- *SDLCM Methodology Handbook*
- SDLCM Methodology Standard S–9053, Content and Format of SDLCM Methodology Standards
- SDLCM Methodology Standard S–9055, SDLCM Methodology Document Numbering
- SDLCM Methodology Standard S–3163, Data Flow Diagrams

D. STANDARD

All CISSCO personnel can recommend new procedures and changes to existing procedures. Provide recommendations in writing to the NRC CISSCO Program Director or to the SDLCM Methodology Team. Meet the content and format requirements established below.

D.1 Format of Procedures

Use the same format and numbering scheme for procedures as for standards. See SDLCM Methodology Standard S–9053, Content and Format of SDLCM Methodology Standards, and SDLCM Methodology Standard S–9055, SDLCM Methodology Document Numbering. The only differences are:

- Use "Procedure" as the Type of document.
- Use "P–" as a prefix to the identifier.

D.2 Content of Procedures

A procedure is a written description of the roles, responsibilities, and steps required for performing an activity or a subset of an activity. Organize the procedure into four sections:

1. Purpose
2. Applicability
3. Reference Publications
4. Procedure

Each of these sections is described in the following paragraphs.

1. PURPOSE

Describe the desired outcome of performing this procedure, such as the creation of an artifact (for example, develop the code for module *x*), or the change of state of an artifact (for example, using code review to change the state of code from created to reviewed and certified).

2. APPLICABILITY

Identify the process or activity to which the procedure applies. Also identify personnel who typically perform the process or activity (that is, the users of the procedure). Describe circumstances that might alter the applicability of the procedure.

3. REFERENCE PUBLICATIONS

Identify documents that may help the reader to understand the procedure. Identify the sections of the SDLCM Methodology that define requirements met by the procedure. List, by number and name, other SDLCM Methodology standards and procedures that contain related information that may help the reader understand the scope and intent of the procedure. List Government and industry publications (for example, NRC regulations or directives) that define requirements partially or totally met by the procedure. Supply all relevant bibliographical information.

4. PROCEDURE

The purpose of any procedure is to specify the steps of an activity clearly and unambiguously, the order in which to perform the steps, and the people (in terms of roles) responsible for performing the steps. In other words, a procedure clearly specifies who does what when.

4.1 Data Flow Diagram

Provide a data flow diagram showing the basic steps and the order in which they are to be performed. See SDLCM Methodology Standard S–3163, Data Flow Diagrams, for the conventions for data flow diagrams. An example of a data flow diagram is given in Figure 9052–1. The data flow diagram shown consists of three steps (each of which may be broken down into further detail if necessary).

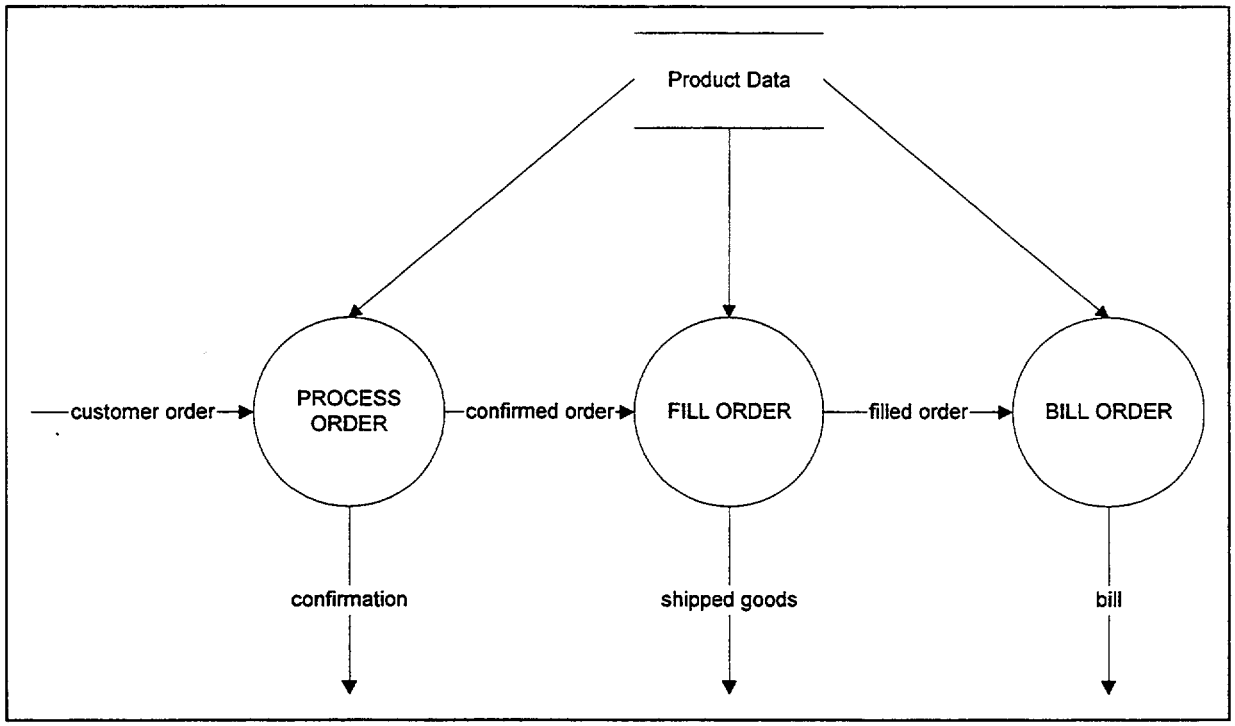

Figure 9052–1. Example of a Data Flow Diagram

4.2 Entry Criteria

Describe the criteria necessary to begin this procedure. Identify both inputs and triggering events. For example, in Figure 9052–1, "Customer Order" is the input.

4.3 Steps

Describe the steps required to perform the activity documented by this procedure. For example, in Figure 9052–1, three steps must be performed: (1) Process Order, (2) Fill Order, and (3) Bill Order.

4.4 Exit Criteria

Describe the exit crietria. Include both outputs and results of the steps. For example, in Figure 9052–1, there are three outputs: (1) a confirmation is sent to the customer, (2) the goods are shipped, and (3) a bill is sent.

4.5 Verification

Describe how the execution and results of the procedure will be independently verified, usually by the independent quality assurance organization.

4.6 Roles

Provide a table showing the roles responsible for each step. For example, a Step-Role Table corresponding to the example given in Figure 9052–1 is shown in Table 9052–1.

Table 9052–1. Example of a Simple Step-Role Table

Steps	Sales	Shipping	Billing
Process Order	P		
Fill Order		P	
Bill Order			P

Legend: P=Performs, R=Reviews, A=Approves, S=Supports

Include textual description explaining the Step-Role Table, as required.

System Development and Life-Cycle Management (SDLCM) Methodology

Subject	Type	Standard
Content and Format of SDLCM Methodology Standards	Identifier	S–9053
	Effective Date	October 1997
	Revision No.	

Approval _____
CISSCO Program Director

A. PURPOSE

This standard specifies content and format requirements for NRC SDLCM Methodology standards.

B. APPLICABILITY

This standard applies to all SDLCM Methodology standards. It is used by all personnel who develop or review standards.

C. REFERENCE PUBLICATIONS

The following publication contains related information:

- *SDLCM Methodology Handbook*
- SDLCM Methodology Standard S–9055, SDLCM Methodology Document Numbering

D. STANDARD

All CISSCO personnel can recommend new standards and changes to existing standards. Provide recommendations in writing to the NRC CISSCO Program Director or to the SDLCM Methodology Team. Meet the content and format requirements established below.

All standards specify rules and guidelines to be applied to specific products. *Product* standards additionally describe the content of an SDLCM Methodology document product by providing an annotated outline.

Sections D.1 and D.2 describe the content and format of all SDLCM Methodology standards. Section D.3 describes the additional content and format of product standards.

D.1 Content of Standards

Organize the standard into four sections:

A. Purpose
B. Applicability
C. Reference Publications

D. Standard

Sections are identified by letters rather than Arabic numerals because Arabic numerals are reserved for use within Section D to prescribe the numbered outline of a *product standard*. Each of these sections is described in the following paragraphs.

Under *Purpose*, specify the purpose of the standard. (Do not specify the purpose of the document whose product standard is being defined.)

Under *Applicability*, identify the product or process to which the standard applies. Also identify personnel who typically develop the product or perform the process (that is, the users of the standard). Describe circumstances that might alter the applicability of the standard.

Under *Reference Publications*, identify documents that may help the reader to understand the standard. Identify the sections of the SDLCM Methodology that define requirements met by the standard. List, by number and name, other SDLCM Methodology standards that contain related information that may help the reader understand the scope and intent of the standard. List Government and industry publications (for example, NRC regulations or directives) that define requirements partially or totally met by the standard. Supply all relevant bibliographical information.

Under *Standard*, specify the standard. Assume that the reader has access to other parts of the SDLCM Methodology documentation. State the standard in simple terms. To the greatest extent possible, use declarative sentences beginning with imperative verbs and containing single direct objects. To the extent possible, do not make qualitative statements.

State circumstances under which the scope or rigor of the standard could change. Provide necessary guidance on adapting the standard to small projects, special tasks, requirements, or different technology areas.

Divide the text of the standard into numbered subsections. Refer to other SDLCM Methodology policies, directives, procedures, and standards by identifier. Use figures and tables to help the reader understand the intent and scope of the standard. If a figure or table is used, include text to help the reader understand it; that is, explain to the reader the message the figure or table conveys.

D.2 Format of Standards

This section specifies the page layout and the conventions for page headers, section numbers and titles, and figures and tables

D.2.1 PAGE LAYOUT

The first and subsequent pages of this standard illustrate the layout of SDLCM Methodology standards.

D.2.1.1 First Page

The first page header indicates that the standard is a part of the SDLCM Methodology, identifies the standard, and includes an approval signature.

D.2.1.2 Subsequent Pages

Subsequent pages include only the standard identification block in the header.

D.2.2 PAGE HEADERS

In the subject field of the page header, enter the name of the standard (for example, "Content and Format of SDLCM Methodology Standards"). Enter the word "Standard" in the type field. The SDLCM Methodology Team assigns the identifier for each standard. The effective date is the date when the standard is published and distributed for use. The revision number field contains an integer (but is left blank for the original standard) that indicates the number of times that the standard has been revised.

D.2.3 SECTION NUMBERS AND TITLES

This standard and the following example illustrate the conventions for numbering and titling sections of SDLCM standards:

A. SECTION TITLE BOLD IN ALL CAPS

A.1 Section Title Bold in Initial Caps

A.1.1 SECTION TITLE PLAIN IN ALL CAPS

A.1.1.1 Section Title Plain in Initial Caps

Do not divide a topic beyond the fourth subsection level. Use the block format style for unnumbered paragraphs; that is, do not indent the first line of a paragraph. If a subsection contains a list of items that is meant to imply sequence or order of importance, use a numbered list, for example,

1. Item 1
2. Item 2
3. Item 3

Use bullets when sequencing is not implied. For all body text:

- Use a 12-point Times New Roman (or Times) font
- Justify the paragraphs on the left, but not on the right

(The word processor template for this standard provides the necessary styles to ensure consistency.)

D.2.4 FIGURES AND TABLES

Use 10-point (or 8-point if extra space is needed) Arial (or Helvetica) in figures and tables unless illustrating a feature that requires Times New Roman. Insert a single line box around a figure unless the box would detract from the line art in the figure.

A figure or table caption includes three fields: the word "Figure" or "Table," followed by the four-character identifier of the standard then a period separator and a title. A figure or table number contains two subfields separated by an en dash (not a hyphen): the four-character number of the standard and a sequence number (indicating the order of appearance). Figures and tables each have their own separate set of sequence numbers, each starting with "1" within the standard. Place a period separator and a single space after the figure or table number followed by the title. Figure 9053–1 illustrates the format of figure and table captions.

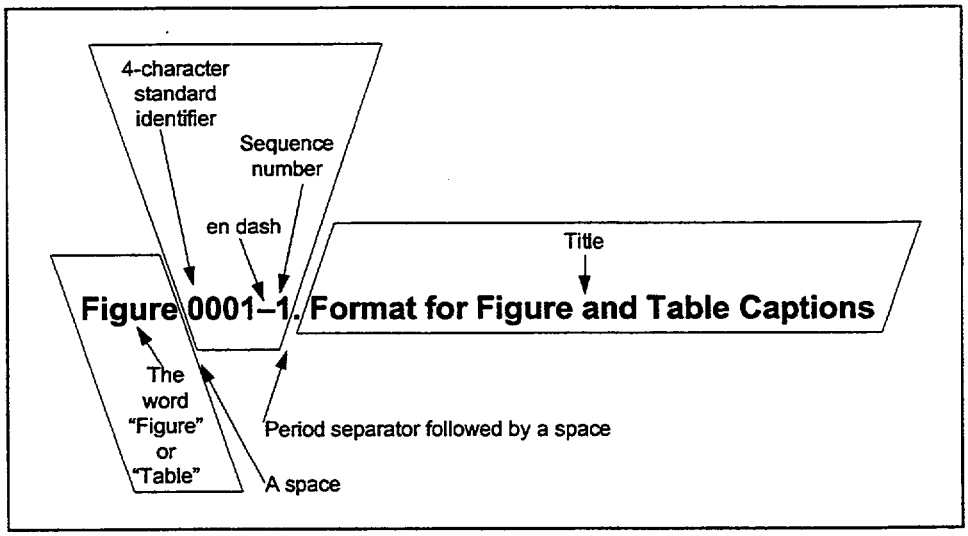

Figure 9053–1. Format for Figure and Table Captions

For figures, center the complete figure caption under the figure as shown above. For tables, center the complete table caption above the table. Use 10-point Arial (or Helvetica) bold for all captions. If possible, use figure and table titles that suggest what readers should conclude from the figure or table. See Table 9053–1 for examples.

Table 9053–1. Examples of Captions for Figures and Tables

Poor Captions	Better Captions
Captions	Examples of Captions for Figures and Tables
Table Caption	Good Table Captions Convey Messages

D.3 Content of Product Standards

A product standard has the same format and content as a non-product standard with a specific requirement for Section D. Beginning on a new page after the introductory portion of Section D of a product standard, provide an annotated outline of the product, using the same section and subsection numbers and titles as required for use in the product. The format is illustrated beginning on the following page.

SDLCM Methodology Standard S–1052, Project Action Plan, provides a good example of a product standard. The following pages include a stylized example.

1. INTRODUCTION

Include one or more paragraphs of text in each section to describe the required content of the section in the product.

Every SDLCM Methodology product will require some introductory material. If a standard requires the introductory subsections illustrated within this sample introduction, include them in the order shown. If a particular subsection is not used in a standard, omit it and adjust the numbering. For example, if the Assumptions subsection is not required, then Applicable Documents becomes Section 1.4. (The rule to delete subsections and their numbers applies only to the development of a product standard, not to the tailoring of a product standard for a specific project.) If additional introductory subsections are required, insert them before the final Overview subsection and adjust the numbering in the standard.

1.1 Background

Describe what happened in the past that led up to whatever this document is about.

1.2 Objectives

Describe the end or ends that we intend to achieve. If there is an overall goal, state that within this section and clarify that it is *the* goal.

1.3 Scope

Describe what this product covers (its scope). Describe what it does not cover (constraints are related to scope and are to be addressed in this subsection).

1.4 Assumptions

Discuss what we have assumed because something we need to know has not been explicitly stated as a requirement or background.

1.5 Applicable Documents

List any other documents that apply.

[1.6 Overview]

If applicable in a long document, provide an overview of the sections that follow. The overview subsection is not used in a product standard for a short deliverable (for example, the Project Charter) but is a useful part of the standard for a longer document (for example, the Project Definition and Analysis Document).

2. APPROACH

Describe the approach that will be used to achieve the objectives stated in the introduction.

3. NAME OF SECTION 3

Provide whatever else is required using the section layout illustrated here.

3.1 A Level-2 Subsection

3.1.1 ITS LEVEL-3 SUBSECTION

3.1.1.1 A Level-4 Section

Include one or more paragraphs of text in each section.

3.1.1.2 A Second Level-4 Section

Include one or more paragraphs of text in each section.

3.1.2 ANOTHER LEVEL-3 SUBSECTION

Include one or more paragraphs of text in each section.

3.2 Another Level-2 Subsection

Include one or more paragraphs of text in each section.

4. YET ANOTHER SECTION NAME

Include one or more paragraphs of text in each section.

Subject	Type	Standard
SDLCM Methodology Document Numbering	Identifier	S–9055
	Effective Date	October 1997
	Revision No.	

Approval C E Fitzgerald
CISSCO Program Director

A. PURPOSE

This standard specifies the numbering scheme for the SDLCM Methodology documents, including policies, procedures, standards, and forms.

B. APPLICABILITY

This numbering scheme applies to all SDLCM Methodology documents. It is used by all personnel who develop or review SDLCM Methodology policies, procedures, standards, and forms.

C. REFERENCE PUBLICATIONS

The following publication contains related information:

- SDLCM Methodology Standard S–9053, Content and Format of SDLCM Methodology Standards

D. STANDARD

D.1 Policy Identifier

An SDLCM Methodology Policy is identified by a four digit number in the range of 0000 to 0999. Policies are numbered sequentially as they are identified and written.

D.2 Identifiers for Procedures, Standards, and Forms

SDLCM Methodology Procedures, Standards, and Forms are identified by a letter, followed by an en dash and four digits. The following is the letter designation:

- Procedure: P
- Standard: S
- Form: F

Table 9055–1 provides the numbering scheme. Use this series for numbering all SDLCM Methodology procedures, standards, and forms.

Table 9055–1. Numbering Scheme (1 of 2)

0000 Series	SDLCM Methodology Policies
1000 Series	Program and Project Management
• 1000	• Project Planning (Includes estimation)
• 1100	• Project Tracking and Oversight
• 1200	• Risk Management
• 1300	• Measurement
• 1400	• Subcontractor Management
• 1500	• Intergroup Coordination
• 1600	• Process and Technology Management
2000 Series	Quality and Configuration Management
• 2000	• Quality Management (Includes audits and reviews)
• 2100	• Peer Reviews
• 2200	• Problem Reporting and Corrective Action
• 2300	• Defect Prevention
• 2400	• (reserved)
• 2500	• Configuration Management
• 2600	• Data Management
• 2700	• Records Management
3000 Series	Requirements and Design
• 3000	• Requirements Management
• 3100	• System Architecture and Design
• 3200	• Software Architecture and Design
• 3300	• Database Architecture and Design
4000 Series	Product Engineering
• 4000	• Software Product Engineering
• 4100	• Software Maintenance
• 4200	• Hardware Product Engineering
• 4300	• Hardware Maintenance
5000 Series	Integration, Testing, and Deployment
• 5000	• Integration
• 5100	• Testing
• 5200	• Deployment

Table 9055–1. Numbering Scheme (2 of 2)

6000 Series	Operational Support
• 6000 • 6100 • 6200	• User Support • Production Support • Maintenance Support
7000 Series	Training
• 7000 • 7100	• Training Plans and Materials • Training Records Management
8000 Series	Reserved for internal management documents needed by contractors using the SDLCM Methodology
9000 Series	SDLCM Methodology Document Standards

Number procedures following the numbering scheme with the last two digits ranging from 01–49. Number standards and stand-alone forms with the last two digits ranging from 50–99. If a form is *directly* associated with a corresponding procedure, then number the standard the same as its associated procedure.

For example, process modeling requires a procedure and a standard. The two items have the following numbers:

- Procedure 3111 Process Modeling
- Standard 3161 Process Models

As another example, the procedure for requesting deviations and waivers from SDLCM Methodology requirements has an associated form:

- Procedure 2010 Deviation and Waiver Request
- Form 2010 SDLCM Methodology Deviation or Waiver Form

D.3 Identifier for Quality Assurance Checklists

The checklists used by the independent quality assurance (QA) organization to audit processes and products processes for conformance with methodology procedures and standards are identified by the letters QA, followed by an en dash and the four-digit number of the related procedure, standard, or form that governs the process or product. For example, a QA checklist used to verify that the data modeling procedure has been implemented by a project would have the identifier QA–3101.

Related Government Forms

INFORMATION SYSTEM DESCRIPTION

1. SYSTEM TITLE	2. SYSTEM CONTROL NUMBER
3. AGENCY PROGRAM SUPPORTED BY SYSTEM	4. PROGRAM AUTHORITY

5. SYSTEM DESCRIPTION

RPOSE/FUNCTION OF SYSTEM

5B. SOURCE(S) OF DATA *(Include Inputs from Other Systems)*

5C. INFORMATION CONTENT

STEM OUTPUTS *(Include Outputs to Other Systems)*

6. NAME AND ADDRESS OF PRINCIPAL PROGRAM OFFICE SUPPORTED BY THE SYSTEM *(Include room numbers)*

7. AGENCY CONTACTS. *(Names, Addresses, and Phone Numbers of System and Program Personnel who can provide additional information about the System and the Program it supports.)*

8. PREVIOUS DISPOSITION JOBS.

9A. PREPARER'S NAME	9B. OFFICE NAME AND ADDRESS
9C. PHONE NUMBER	
ATURE	DATE

Definition

An *Information System* is the organized collection, processing, transmission, and dissemination of information in accordance with defined procedures. NARA's concern is with the government information in the system, that is, with information created, collected, processed, transmitted, disseminated, used, stored, and disposed of by the Federal Government. An electronic information system includes the inputs and outputs that are generated, as well as the information on electronic media. The system may contain budgetary, fiscal, social, economic, scientific-technical or program-related data and information, operated in support of agency programs and management responsibilities.

Explanations

1. The commonly used name and acronym of the system [*e.g.*, Budget System, Grain Monitoring System (GMS), *etc.*]

2. The internal control number assigned to the system for reference, control, or cataloging purposes [*e.g.*, Information System Inventory Number, ADP Plan control number, *etc.*]

3. What agency programs or missions does the system support?

4. What laws, directives, *etc.*, authorize these programs?

5. Description has the following sections:

   a) *Purpose/Function:* The reasons for and the requirements met by the system.

   b) *Sources of Data:* The primary sources or providers of data to the system [*e.g.*, Broadcast License Holders, Corporations doing business in the US, *etc.*]. Does this system receive information from other systems, either from within or outside your agency?

   c) *Information content:* The principal subject matter, data coverage, time span, geographic coverage, update cycle, whether the system saves superceded information, major characteristics of the system, and whether the system contain microdata or summary data.

   d) *Outputs:* The principal products of the system. [*e.g.*, reports, tables, charts, graphic displays, catalogs, correspondence, *etc.*, and an indication of the frequency of preparation.] Is information from this system transferred to other systems?

6. and 7. Self explanatory.

8. Citations of previous NARA disposition jobs approving disposition of components [*e.g.*, input forms, printouts, COM, output reports, *etc.*] of the system.

9. Self explanatory.

NRC FORM 331
(9-88)

U.S. NUCLEAR REGULATORY COMMISSION

RECORDS RETENTION AND DISPOSITION AUTHORITY

1. CONTROL NO.

2. ORGANIZATION *(Office/Division/Branch)*

3. IDENTIFICATION OF FILING UNIT *(Include type of record, function performed, and other descriptive facts)*

4. VOLUME *(cu. ft.)*

5. DATES *(Inclusive)*

6. EVALUATION *(Include justification for retention period and reasons disposal is warranted. Indicate relationship of items to other items in the same or other organizational units. Use reverse side if additional space is required.)*

7. RECOMMENDED RETENTION PERIOD

8. CONCURRENCE SIGNATURES *(as required)*	TITLE	ORGANIZATION	DATE
a.			
b.			
c.			

9. APPROPRIATE DISPOSITION AUTHORITY AND/OR REMARKS:

10. SIGNATURE OF OFFICIAL COMPLETING ITEM 9 ABOVE	TITLE	ORGANIZATION	DATE

NRC FORM 616
(3-97)
NRCMD 2.5

U.S. NUCLEAR REGULATORY COMMISSION

DATE

NOTIFICATION OF ELECTRONIC INFORMATION SYSTEM DESIGN OR MODIFICATION

APPLICATION SYSTEM PROJECT PARTICIPANTS

(See NRCMD 2.5 for definition of these application system project roles)

EXECUTIVE SPONSOR			OVERALL PROJECT MANAGER		
OFFICE/DIVISION/BRANCH	TELEPHONE	MAIL STOP	OFFICE/DIVISION/BRANCH	TELEPHONE	MAIL STOP
BUSINESS PROJECT MANAGER			TECHNICAL PROJECT MANAGER		
OFFICE/DIVISION/BRANCH	TELEPHONE	MAIL STOP	OFFICE/DIVISION/BRANCH	TELEPHONE	MAIL STOP

TYPE OF ACTION *(Check one)*

- ☐ New development effort for application/system.
- ☐ Major system modification. *(See major types of modifications below.)*
- ☐ Data conversion effort/transition to different application/system.

NOTE: Major types of systems modifications include:

- Modifications to add/delete a series of records.
- Modifications that change the function or purpose of a system.
- Modifications that change the assigned application system category.
- Modifications that affect data retention, storage, or disposition.
- Modifications that affect the life cycle management of the information or its ultimate disposition.
- Modifications that change the medium used for maintaining permanent records.
- Any change affecting a records management element of the system.

SYSTEM INFORMATION

NAME OF APPLICATION	SYSTEM NUMBER (IF ANY) FROM NRC SYSTEMS INVENTORY

DESCRIPTION OF APPLICATION FUNCTION

OFFICE(S) SUPPORTED

NAME OF OFFICE	NAME OF OFFICE CONTACT	TELEPHONE	MAIL STOP

CURRENT PROJECT STATUS (Include NRCMD 2.5 Life cycle component and step)

REQUEST FOR RECORDS DISPOSITION AUTHORITY

(See Instructions on reverse)

1. NATIONAL ARCHIVES and RECORDS ADMINISTRATION (NIR)
WASHINGTON, DC 20408

FROM (Agency or establishment)

2. MAJOR SUBDIVISION

3. MINOR SUBDIVISION

4. NAME OF PERSON WITH WHOM TO CONFER | 5. TELEPHONE

LEAVE BLANK (NARA use only)

JOB NUMBER

DATE RECEIVED

NOTIFICATION TO AGENCY

In accordance with the provisions of 44 U.S.C. 3303a the disposition request, including amendments, is approved except for items that may be marked "disposition not approved" or "withdrawn" in column 10.

DATE	ARCHIVIST OF THE UNITED STATES

6. AGENCY CERTIFICATION

I hereby certify that I am authorized to act for this agency in matters pertaining to the disposition of its records and that the records proposed for disposal on the attached _____ page(s) are not now needed for the business of this agency or will not be needed after the retention periods specified; and that written concurrence from the General Accounting Office, under the provisions of Title 8 of the GAO Manual for Guidance of Federal Agencies,

☐ is not required; ☐ is attached; or ☐ has been requested.

DATE	SIGNATURE OF AGENCY REPRESENTATIVE	TITLE

7. ITEM NO.	8. DESCRIPTION OF ITEM AND PROPOSED DISPOSITION	9. GRS OR SUPERSEDED JOB CITATION	10. ACTION TAKEN (NARA USE ONLY)

INSTRUCTIONS

GENERAL

Use Standard Form 115 to obtain authority for the disposition of records. Submit two signed copies to the National Archives and Records Administration (NIR), Washington, DC 20408, and retain one copy as your suspense copy. NARA will later return one copy as notification of the items approved for disposal or archival (permanent) retention. This copy will also indicate any items withdrawn or disapproved. GAO's written approval must either accompany each SF 115 requiring Comptroller General concurrence or be requested prior to the submission of the SF 115 to NARA. The SF 115 may be accompanied by Standard Form 115A, Continuation Sheet, by schedule items entered on blank stationery formatted similar to the SF 115A, or by pages formatted to conform to the agency's published records disposition schedule.

SPECIFIC

Entry 1 should show the name of the Executive Branch department or independent agency, Legislative Branch agency, or the Administrative Office of the U. S. Courts for the Judicial Branch that is submitting the request.

Entries 2 and 3 should show the major and minor organizational subdivisions that create or maintain the records described on the form. If more than one subdivision maintains records described in the submission, the various office names should be specified in entry 8.

Entries 4 and 5 should provide the name and telephone number of the person to be contacted for information.

Entry 6 must be signed and dated by the agency official authorized to certify that the retention periods for records proposed for disposal are adequate to meet the agency's needs, and that GAO requirements have been met (check appropriate box). Unsigned SFs 115 will be returned to the agency.

Entry 7 should contain the item numbers of the records identified on the form in sequence, beginning with "1." Lower case letters and numbers may be used to designate subdivisions of an item (1a, 1b, 1b(1), 1b(2), etc.). Agency file numbers should not be entered in this column, but may be included in entry 8.

Entry 8 should describe the records to be scheduled. Follow these steps in describing the records:

(a) Include centered headings for groups of items to indicate the office of origin if all records described on the form are not those of the same office, or if they are records created by another office or agency such as, for example, records inherited from a defunct agency.

(b) Identify separate collections of nontextual records, such as photographs, sound recordings, maps, architectural drawings, or magnetic tapes or disks, as separate and distinct items. If such records are interspersed with textual records, as in case files, their presence should be noted in the description of the textual file.

(c) Describe completely and accurately each series of records proposed for disposal or transfer to the National Archives. See 36 CFR 1228 for more detailed requirements. Failure to comply with the provisions of that regulation will result in the return of the SF 115 for corrective action.

(d) Provide clear disposition instructions for each item and subitem. These instructions should include file breaks; the time after which records will be retired to Federal records centers, if applicable; for temporary records, the time after which they may be destroyed; and for archival (permanent) records, the time after which they will be transferred to the legal custody of the National Archives.

(e) If immediate disposal or transfer to the National Archives is proposed for non-recurring records, indicate the volume and inclusive dates of the records and the Federal records center accession and box numbers, if applicable.

(f) If future or continuing disposition authority is requested, state the retention period in terms of years, months, etc. or in terms of future actions or events. Ensure that any future action or event that must precede final disposition is objective and definite.

(g) If records are converted to electronic form, schedule both the original records and the electronic media, unless covered by the General Records Schedules.

(h) If permanent or unscheduled records are converted to microform, the disposition for both the original and microform copies must be approved on an SF 115. The SF 115 covering the microform must contain the certifications required by 36 CFR 1230. Approval is not required for the disposition of microform copies of records authorized for disposal, as specified in the regulation cited above.

Entry 9 must include the previous NARA disposition job and item numbers; General Records Schedule and item numbers, if applicable; and agency directive or manual and item numbers, if applicable, as required by 36 CFR 1228. If such information is missing from column 9, the SF 115 will be returned without action. Leave column 9 blank only if the records are being scheduled for the first time.

Entry 10 is for NARA use only and should be left blank.