Information Management Process Description Guideline

PDG01-2010

NUCLEAR INFORMATION AND RECORDS MANAGEMENT ASSOCIATION
10 Almas Road, Windham, NH 03087

Process descriptions developed by a committee, subcommittee, or ad hoc committee of the Nuclear Information and Records Management Association (NIRMA) represent a consensus of the members of the committee, subcommittee, or ad hoc committee with the concurrence of the NIRMA membership and Board of Directors. These guidelines are recommended for establishing a program or performance of a task related to the interests of NIRMA members. Process descriptions represent the consensus of the sponsoring committee on the best information based upon applicable regulatory requirements, industry standards and practical experience. A lesser amount of detail may be used to identify the areas of interface outside the scope of the document. Process descriptions are not intended to be interpreted as industry standards but as suggested guidance with the understanding that companies are not obligated to use the suggested guidance.

FOREWORD

In February 2003, at the direction of the Nuclear Information Management Strategic Leadership (NIMSL) steering committee, at that time sponsored by Nuclear Energy Institute (NEI), an industry task force was chartered to address the broader scope of the definition of information management (IM) through the development of an industry process description. This task force was composed of representatives from the NIMSL and subject matter experts from configuration management, records management, and document control and information technology process areas.

> *Information Management is defined as the costs and activities that comprise the formal process by which information important to the business is generated, revised, received, stored, retrieved, distributed and destroyed. In addition, the process, as defined in the NEI Standard Nuclear Performance Model (SNPM), includes office related activities such as keying, filing, mail processes, maintaining office supplies, reproduction and fax services, and other administrative support activities.*

Information management is an enabling process and, as such, it may be applied throughout the SNPM in process areas such as configuration management, work management, materials and services, loss prevention and training. This process description *does not* include the office services sub-process as identified in the process map SS003 Nuclear Records Management Benchmarking Report, March 2002.

The management of information that enables effective decision making is the responsibility of all employees and process owners. Figure 2 "Interface Diagram" illustrates the relationship between the information management process and the Standard Nuclear Performance Model. Process owners create many kinds of information in order to effectively perform work. Some information is deemed important enough to be formally managed and therefore enters the information management process—becoming "managed information." To effectively manage information, a program should be approved and documented.

An integrated relationship between the processes for configuration management, information technology and information management exists. The information technology process provides many tools, techniques, and hardware/software "boundary conditions" that are used in the IM process. The configuration management process utilizes the IM process to ensure information about plant design is maintained up-to-date and available for use. It too establishes technical "boundary conditions" from which the IM process must operate. Effective information management practices capitalize on this interdependency and work to achieve synergies among these processes. The goal of the IM is to optimize the performance of the process given the nature of the bounding restraints of the information technology and configuration management processes.

A selection of both industrywide and diagnostic performance measures is provided in Appendix D. Industrywide performance measures are used for process performance comparison and as comparative analytical tools (plant to plant). Diagnostic measures are intended to be used as analytical tools by process owners when measuring the health of the process (internal use) and when performing self-assessments of the information management processes.

An important consideration in managing a company's IM process is tied directly to safety and the basis for revenue generation and shareholder value. The financial drivers for each of these are different for regulated (rate-based) versus nonregulated (profit-based) businesses. PDG01 does not specifically address the decision-making basis associated with managing the process within these two environments. There are many different approaches to providing information management, both programmatic and virtual. An acceptable process could be managed using electronic processes or hardcopy. These considerations are left to the judgment of each company.

In 2008 NEI decided to no longer sponsor business process activities. In 2009 NIMSL became a business unit of NIRMA. NEI agreed that AP-907 would be maintained by NIRMA in the future and this was republished with only minor edits as PDG01-2010. For this reason the original team members are shown, as no substantive content changes were made. Only formatting changes were made by NIMSL to create this new document

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Nuclear Information Management Strategic Leadership (NIMSL)

Nuclear Information and Records Management Association (NIRMA)

Nuclear Information Technology Strategic Leadership (NITSL)

PPL Susquehanna, LLC

Progress Energy

Sargent & Lundy, LLC

South Carolina Electric and Gas Company

Southern California Edison

SPESCOM Software

STP Nuclear Operating Company

TXU Energy

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1 ABSTRACT

The purpose of this information management process description is to document industry consensus on a standard process for managing information within the nuclear industry.

PDG01 is a general process guideline and is intended to be used by nuclear plant owners and/or operators to assess their organizations management of information as defined in the NEI/EUCG Standard Nuclear Performance Model. Figure 1 shows the subprocess model architecture. This process description establishes a baseline for consistent information management activities and discusses performance measures.

PDG01 is intended to be used as a tool for performing effective self-assessments. An effective process description enables standardized comparisons to be made and provides a basis for improvement suggestions.

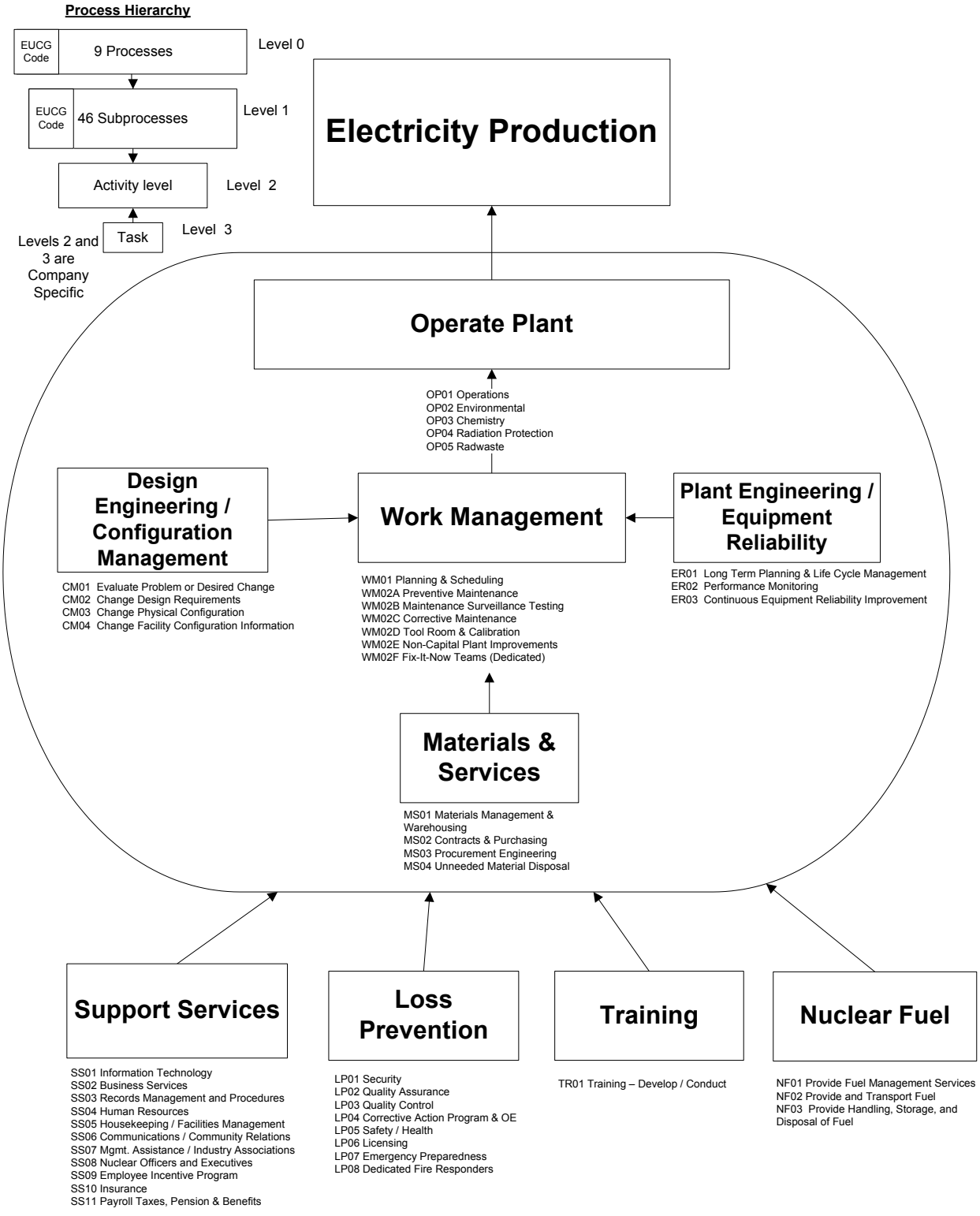


Figure 1 - Standard Nuclear Performance Model (SNPM) Process Architecture

2 APPLICATION

PDG01 may be applied to support continuous improvement when performing information management (IM) functions. The following steps are suggested for continuous improvement modeling:

- Step 1: Applicability Check – Define the scope of the current assessment or assist visit. Initiate a current-state assessment of the IM process by identifying the processes, key performance indicators, and diagnostic measures identified in PDG01 that apply to the site processes.
- Step 2: Baseline Assessment – Perform an assessment using both qualitative and quantitative data to determine gaps, areas of strength and areas for improvement. Analyze the differences.
- Step 3: Plan Development – Review the results of the baseline assessment to identify areas of relative weakness. Select and validate areas of interest and develop a plan for process improvement. The assessment may identify areas that will require both long-term and short-term efforts. Long-term areas should be noted and may be reassessed prior to developing a plan for improvement. A plan for the short-term goals should be developed. Short-term plans should be specific and achievable within a six-to-twelve month time period.
- Step 4: Plan Implementation – Monitor the improvement plans as they are implemented; they may require adjustment to assure their success. Reinitiate the assessment process (return to Step 1) as part of a continuous improvement program.

The suggested process steps and good practices are intended to be applied at sites as appropriate, considering corporate and site-specific policies and objectives. PDG01 content should be considered for incorporation into site-specific procedures and supported by desktop guidelines that capture institutional knowledge, as required. It should be noted that these steps are a general guide. Companies should not make changes based solely on this guideline. Rather, changes should be linked to business goals and objectives and that are a result of a structured approach to change.

The following example provides a high-level structure that can be used as a guideline to develop an IM program. The intent of this example is to identify program elements that should be considered, not to provide an all-inclusive list.

Receive
Prior to receipt of information to be managed, the following should be considered:

- A classification system that identifies the type of information to be managed: Examples are:
  - Information source
  - Retention
  - Required metadata (data describing context, content and structure of information)
  - Indexing rules
  - Security and access.
- Acceptance criteria that may include reviews for:
  - Legibility/readability
  - Authenticity
  - Currency (is it the right revision level)
  - Completeness
  - Access restrictions
  - Links to other information
  - Storage format(s).

Store
Store should consider identification of storage location, placement, maintenance and the protection of information. Regulatory and/or business requirements will dictate which programmatic controls need to be established to ensure information integrity. Examples of controls to be considered are:

- Facility requirements
- Environmental requirements
- Programmatic controls for information integrity throughout its life cycle.

Retrieve
Retrieval of managed information is dependent on:

- An established set of metadata, including index information that enables the identification of the physical location of the information. For stored information to be retrieved, the metadata must contain enough descriptive information to allow a search of the index information.
- An electronic display of search results consisting of sufficient metadata, from which the requestor can select the information that matches the specific informational need.

An established set of access restrictions may determine whether or not the information can be removed, reproduced or viewed.

Distribute
Distribution of information is based on requirements contained in the metadata including the location of the information, distribution method, media on which the information will be distributed and preparation of the information for delivery. Successful completion of the distribution places the information prepared on the required media, to the user, using a variety of delivery methods. Failure to successfully distribute the information requires the distribution process to be repeated to determine the reason for failure.

Destroy
A program for destruction of information should be developed in accordance with business and regulatory requirements. The program should include provisions and instructions for destruction of various storage media. Consideration should be given to disposition of associated metadata. Guidance should be developed to determine the degree of stakeholder involvement prior to destruction.

3 PROCESS DESCRIPTION FLOWCHARTS

The information management (IM) process is part of an overall set of integrated processes for the operation and support of nuclear plants. It is the process by which information important to the business is received, stored, retrieved, distributed, and ultimately destroyed. The relationship between this process and Standard Nuclear Performance Model processes is shown in the "Interface Diagram" in Figure 2. It describes how information is created and flows from business process owners as unmanaged information into the IM process. There is a decision point upon entry to the IM process as information is created or updated. The decision point represents the preestablished controls that are in place to enter the formal information management process. These controls should be based on preestablished regulatory, legal, insurance or business requirements.

The IM Process Description was developed to assist companies in capturing cost and comparing process related information. This section describes the steps to define and implement that process. The flow charts describe the activities. The IM process is represented in the following levels of detail and includes:

- Receive Information
- Store Information
- Retrieve Information
- Distribute Information
- Destroy Information.

The process model was developed by interviewing experienced IM industry personnel and capturing their knowledge by using a simplified version of the Institute of Electrical and Electronics Engineer's standard Integrated Definition for Functional Modeling (IDEF0) process modeling convention. This model was then converted to the standard flow chart methodology used by NEI and INPO. The resulting model consists of a four-tiered hierarchy of documents as follows:

- Level 0 "Context" flowchart displays the data flow and requirements that interface with the overall IM process. At this level significant input, controls and outputs to the IM process are shown (Section 3.1).
- Level I process flowchart expands on the top-level diagram, presents all high-level process objectives and contains the activities, inputs and outputs necessary to deliver the products and services (Section 4.2). The high-level flowchart represents an overview of the major process activities and their relationships.
- Level II intermediate-level flowcharts expand on the Level I process activities and add a level of detail necessary to achieve the process objectives (Section 4.3-7).
- Level III detailed text descriptions describe the Level II flowchart elements and include input, process and output descriptions. The Level III process text descriptions include control mechanisms, where applicable.

For simplicity of presentation, feedback is not routinely shown on the flowchart. Rather, feedback is considered a natural and expected activity. For example, in the Store Level II flowchart, if it is determined that the Identify Location step reveals a deficiency in the metadata, the Receive Information step in the Receive Level II flowchart will be repeated rather than proceeding to Place Information step in the Store Level II flowchart.

Continuous process improvement is not explicitly shown but is assumed to occur at every level of the process. Appendix C defines the conventions used in the flowcharts presented in this process description.

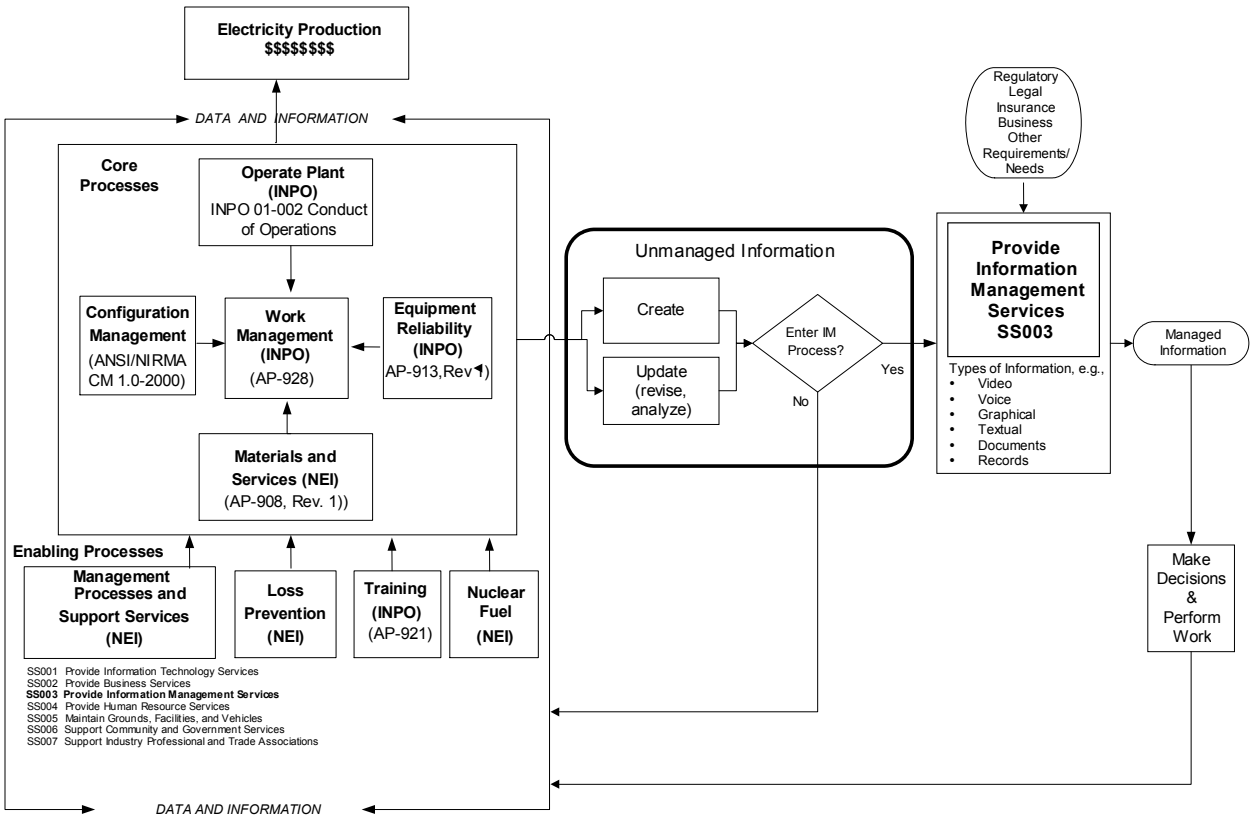
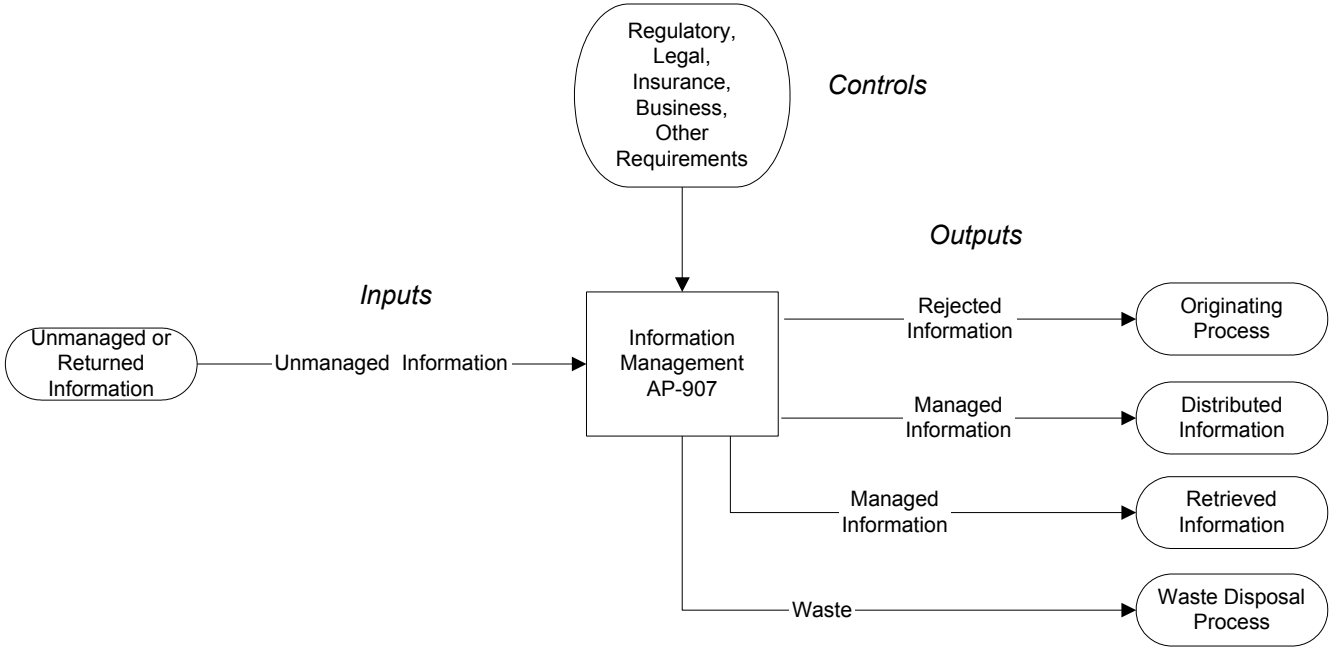


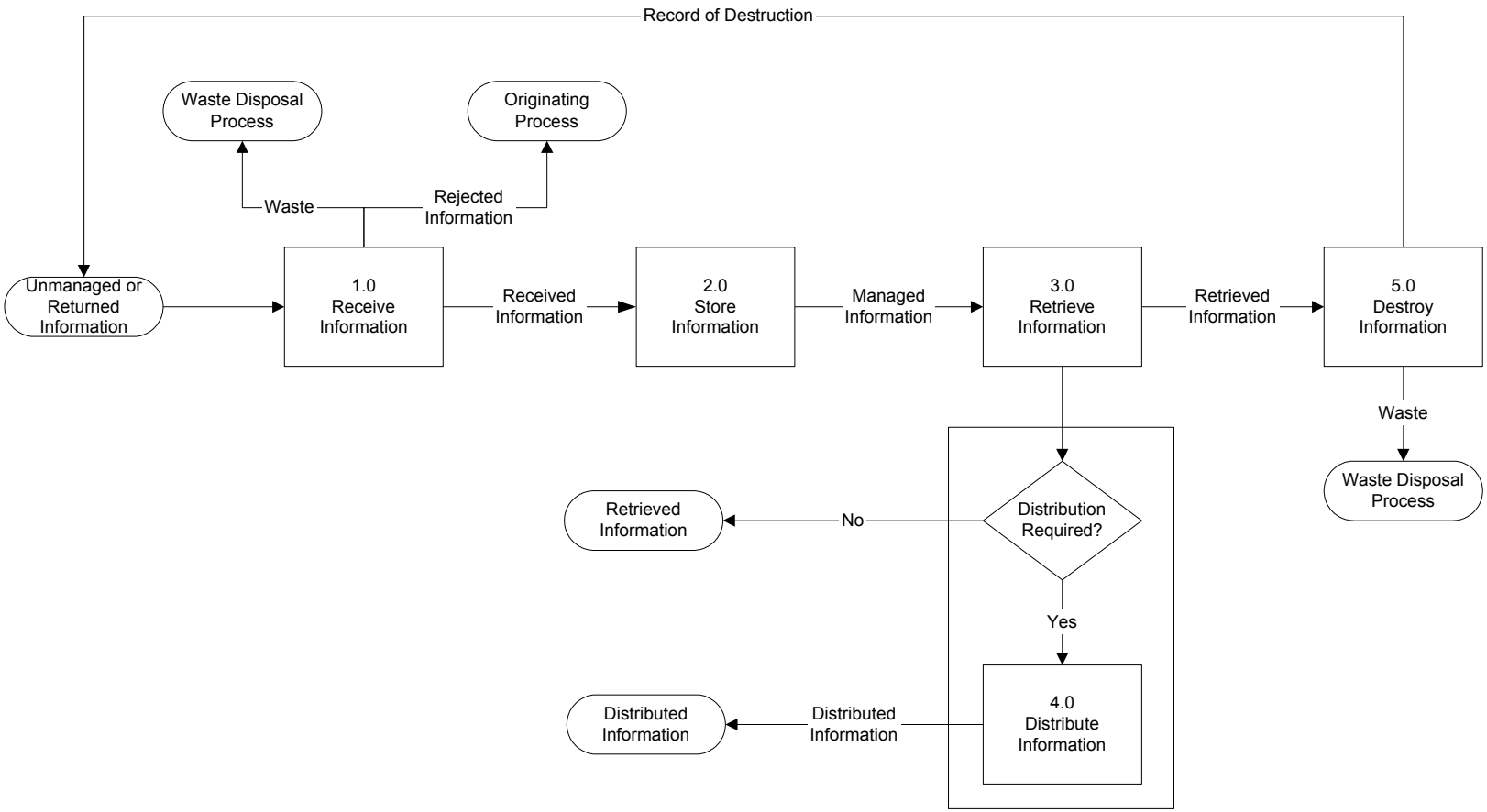
Figure 2 Interface Diagram – Relationship between The Standard Nuclear Performance Model and the Information Management Process

3.1 CONTEXT FLOWCHART LEVEL 0 – SS003 PROVIDE INFORMATION MANAGEMENT SERVICES

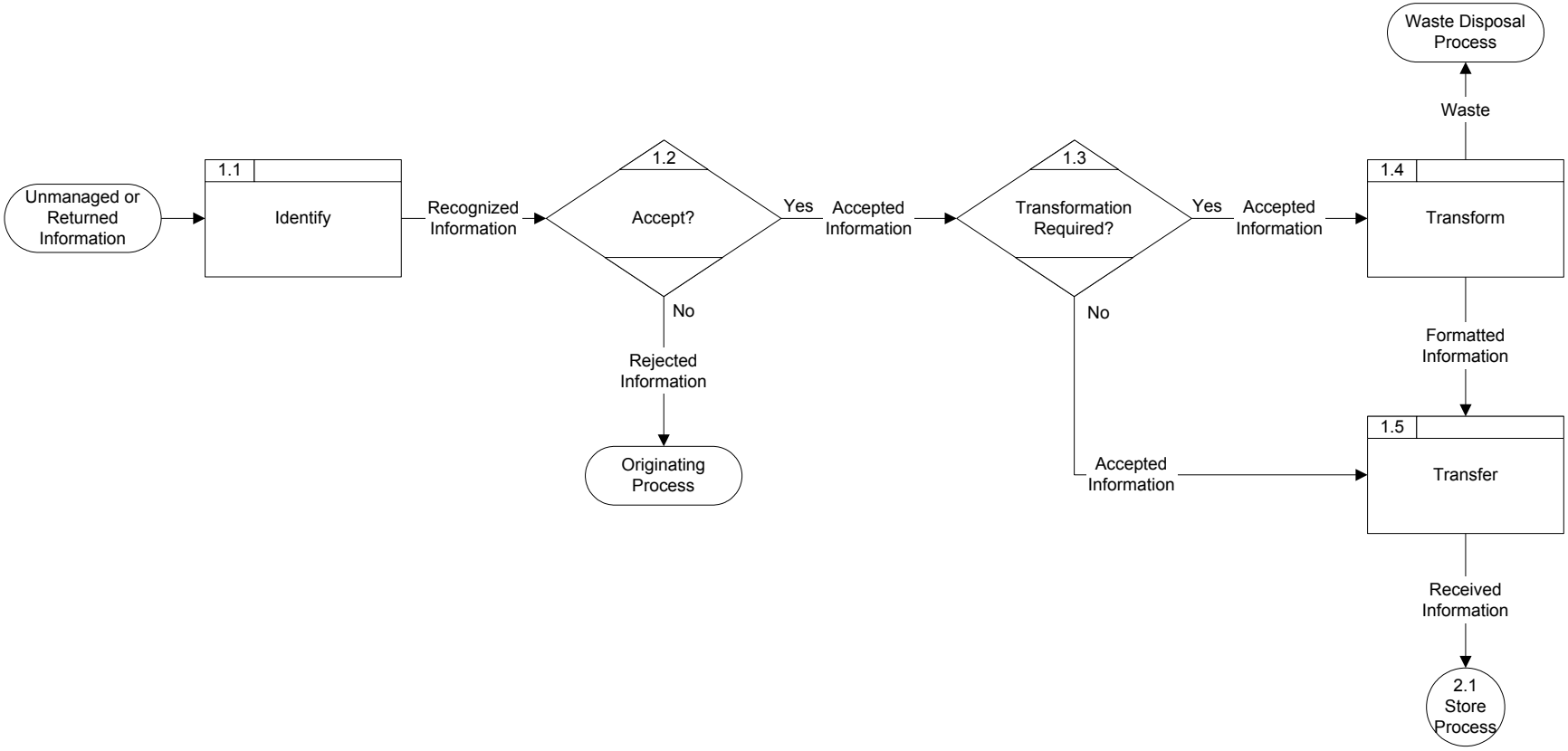
Level 0 Flowchart displays the data flow and requirements that interface with the overall IM process. At this level significant input, controls and outputs are illustrated. Detailed flowchart descriptions are given in Section 3.8.



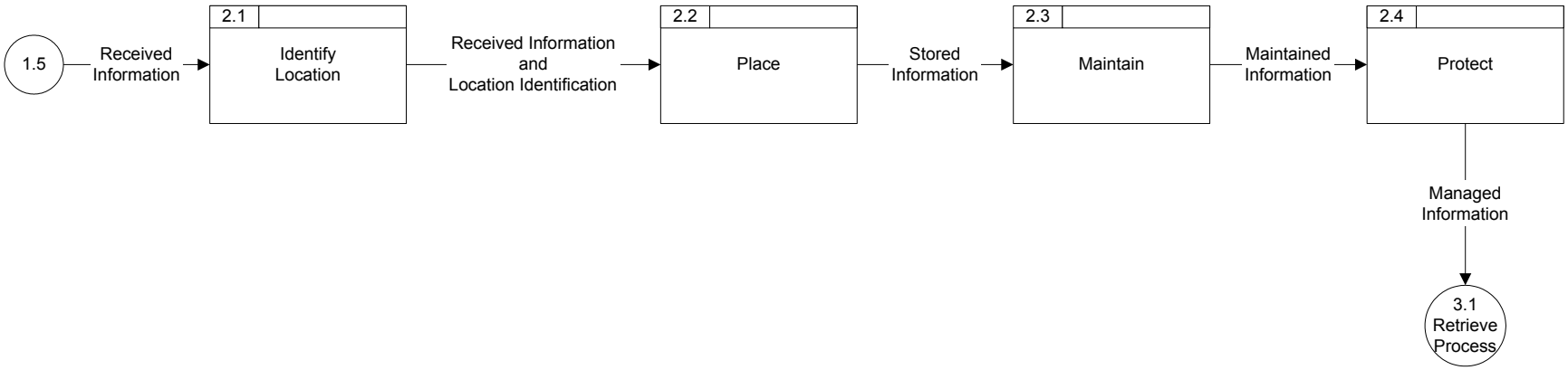
3.2 TOP-LEVEL FLOWCHART LEVEL I - PROVIDE INFORMATION MANAGEMENT SERVICES



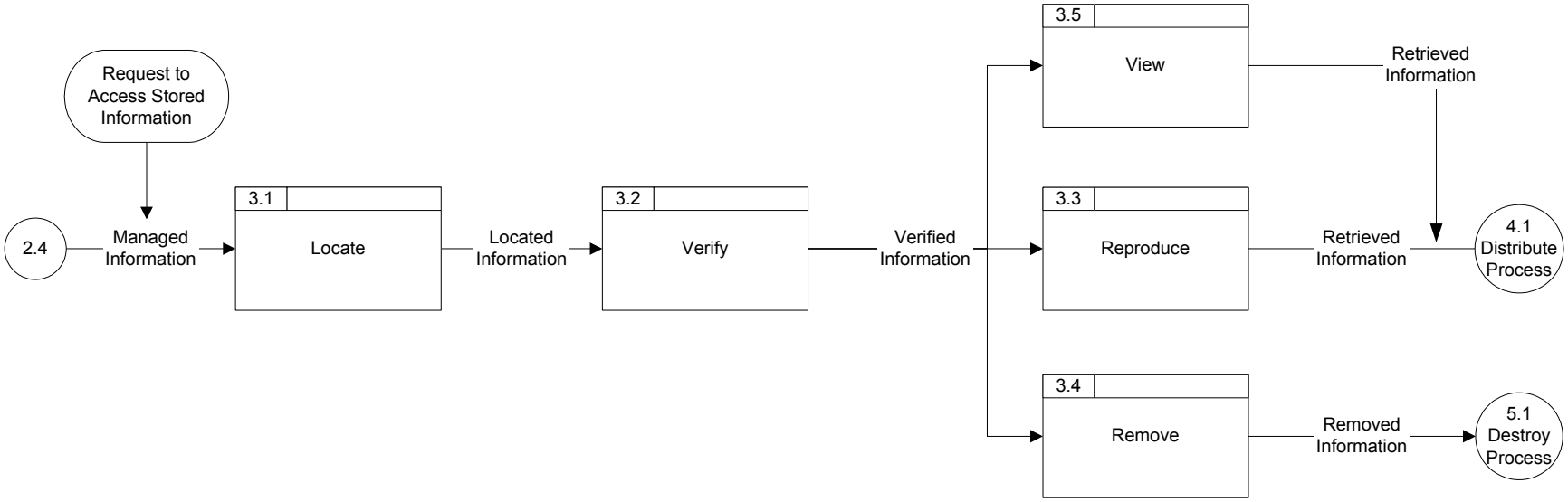
3.3 INTERMEDIATE-LEVEL FLOWCHART – LEVEL II RECEIVE INFORMATION (STEP 1.0 IN LEVEL I CHART)



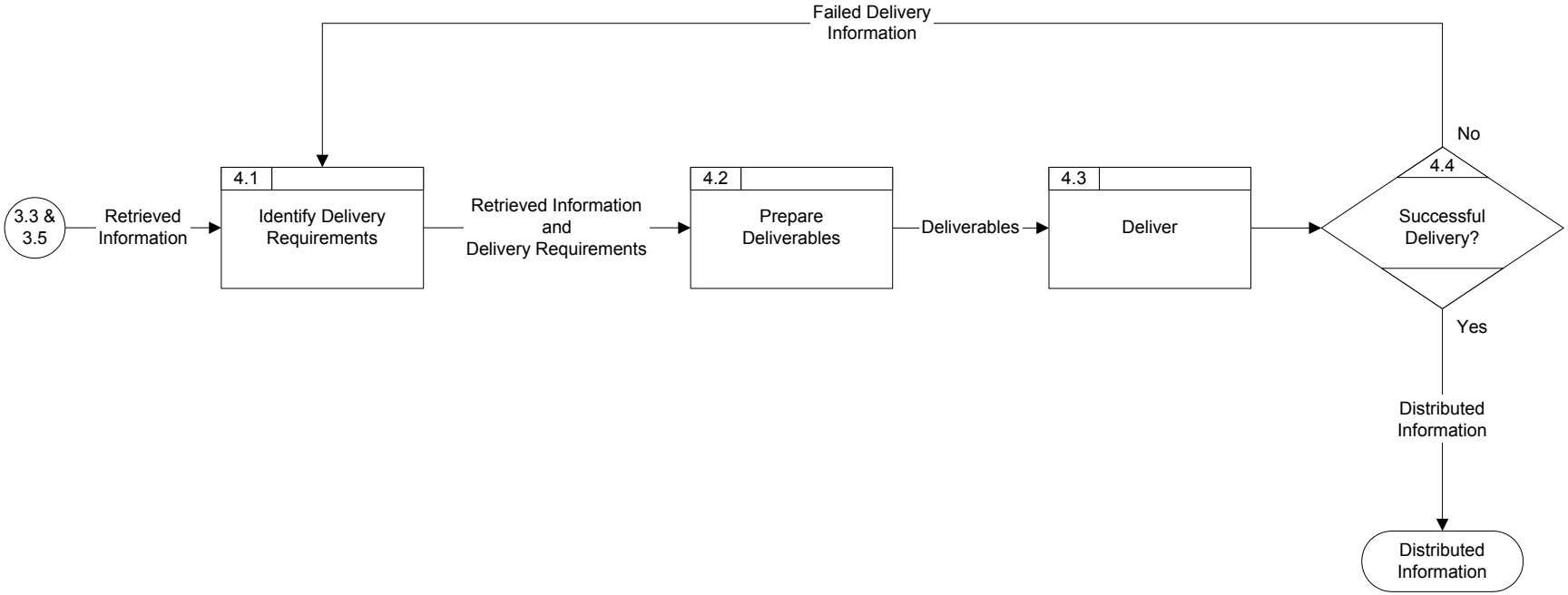
3.4 INTERMEDIATE-LEVEL FLOWCHART – LEVEL II STORE INFORMATION (STEP 2.0 IN LEVEL I CHART)



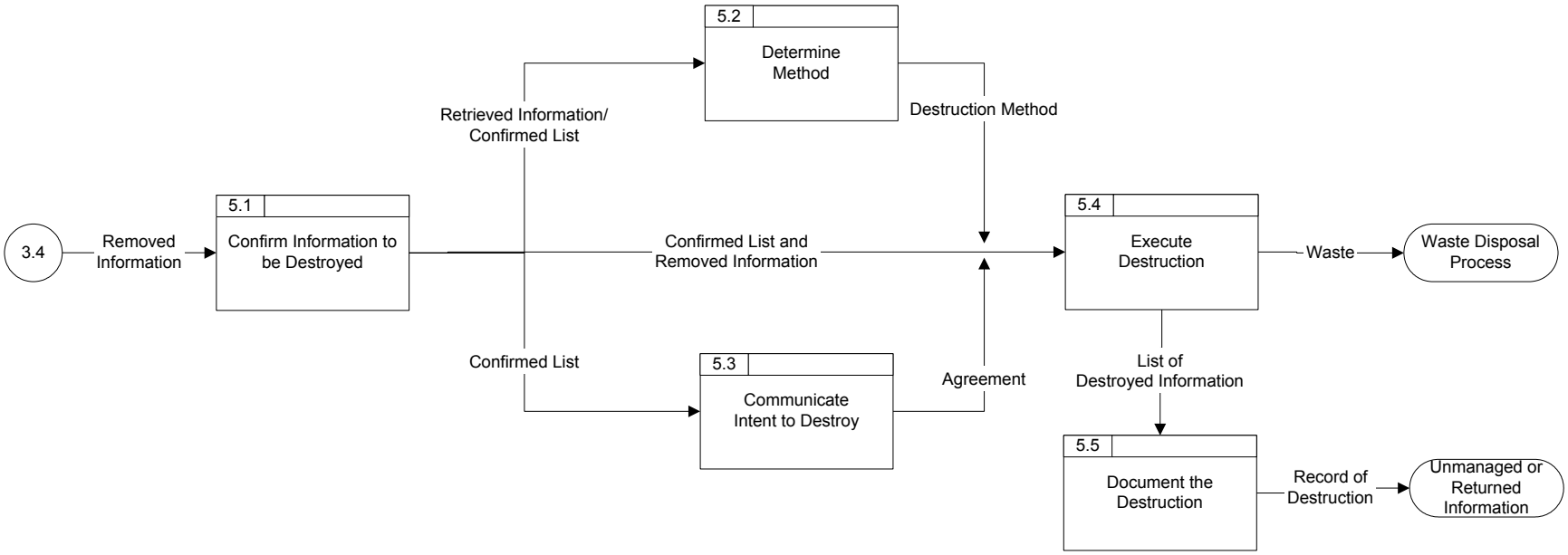
3.5 INTERMEDIATE-LEVEL FLOWCHART – LEVEL II RETRIEVE INFORMATION (STEP 3.0 IN LEVEL I CHART)



3.6 INTERMEDIATE-LEVEL FLOWCHART – LEVEL II DISTRIBUTE INFORMATION (STEP 4.0 IN LEVEL I CHART)



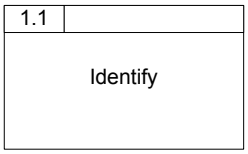
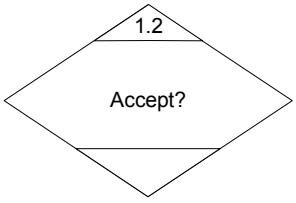
3.7 INTERMEDIATE-LEVEL FLOWCHART – LEVEL II DESTROY INFORMATION (STEP 5.0 IN LEVEL I CHART)

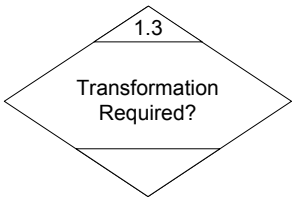
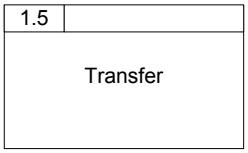


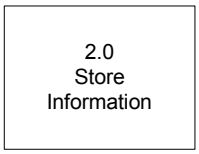
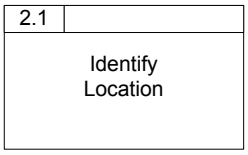
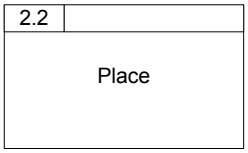
3.8 DETAILED FLOWCHART TEXT DESCRIPTIONS - LEVEL III PROVIDE INFORMATION MANAGEMENT SERVICES

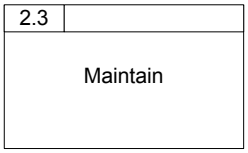
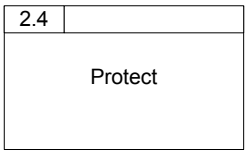
This section contains step-by-step instructions for carrying out the provide information management services process, and describes the inputs and outputs associated with each activity.

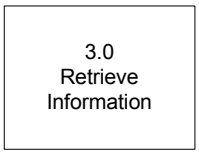
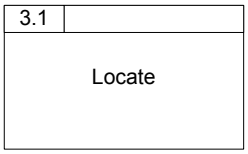
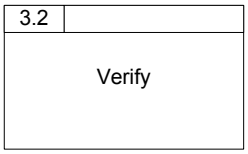
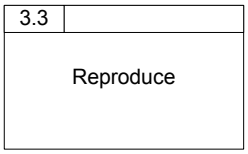
Business need: Manage Information	The management of information that enables effective decision making is the responsibility of all employees and process owners. Process owners create many kinds of information in order to effectively perform work. Decision or control point: Some information is deemed important enough to be formally managed, such as regulatory, legal, insurance, and other business requirements and critical data, and therefore enters the information management process—becoming "managed information."
1.0 Receive Information	Inputs: returned information, unmanaged information Process: When a business need, regulatory or legal requirement determines information should be managed, the unmanaged information becomes received information after it has been identified, transformed (formatted if required) and transferred to storage. In the event the information is not accepted, the information is returned. In addition, the formatting activity may produce waste, e.g., paper to image, paper to microfilm, etc. Note: This process does not validate information content. Outputs: rejected information, waste, received information

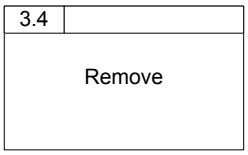
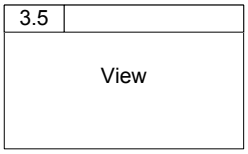
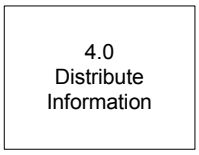
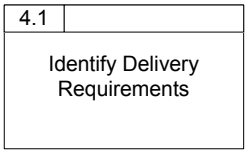
	Inputs: returned information, unmanaged information Process: Unmanaged or returned information becomes recognized information when it has been verified, classified and indexed. These activities are: ■ Verifier reviews information to validate content is legible and recognizable for continued processing. This does not assure the correctness of the content. If information cannot be verified it cannot be managed and will be rejected. ■ Classify ensures information is grouped within the correct context according to the established criteria. If information cannot be classified, it cannot be managed and will be rejected. ■ Examples of established criteria include: (1) the information has been authenticated and (2) the media received is acceptable for further processing and formatting. ■ Indexing is the process of entering metadata into the fields defined by the classification activity. If required metadata is not available, the information cannot be indexed and will be rejected. ■ Determine the security rights and access controls to the information and any special requirements associated with dissemination of the information (access control list, safeguards). ■ Determine the appropriate destruction method. Outputs: recognized information
	Inputs: recognized information Process: When the information has been validated for legibility, identification, authentication, and classification and the metadata has been indexed it is accepted information. When the information does not meet any of the criteria stated above it is rejected information and is returned to the originating process. Outputs: accepted information, rejected information

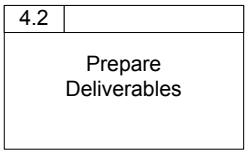
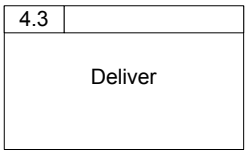
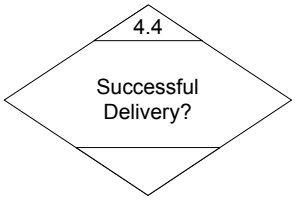
	Inputs: accepted information Process: A determination needs to be made whether the accepted information requires transformation into a different media format. If yes, then enter the transform step. If the accepted information is appropriately formatted then proceed to the transfer step. Outputs: accepted information
	Inputs: accepted information Process: Conversion of media format, where appropriate. This conversion process must ensure the content and context of the information is not changed. Document, file and directory naming conventions shall be easily understandable, standardized and documented. In addition, the transform activity may produce waste, e.g., paper to image, paper to microfilm, etc. Outputs: formatted information, waste
	Inputs: formatted information, accepted information Process: Formatted information is moved for distribution, use, and storage. Outputs: received information

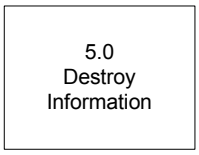
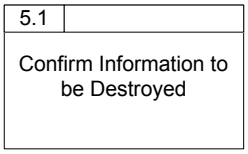
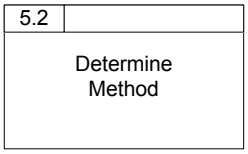
	Inputs: received information Process: Identify location, place, maintain, protect information and apply security controls as appropriate. Outputs: managed information
	Inputs: received information Process: Location identification can take place in two different ways. Some information will be received with location identification preassigned. Other information may be received without preassigned identification information. In such cases, legal, regulatory, security and business requirements are consulted to determine an appropriate location for the information. Outputs: location identification, received information
	Inputs: received information, location identification Process: Information is placed in its appropriate storage location either manually or automatically. The storage location must be tracked and communicated to allow for further access. The placement of the information is conducted using the storage procedures and systems developed in the storage program. With the placement of the information in storage, its arrival at the storage location is communicated to customers for their future use. This communication can take many different forms such as written or tracking-system-generated notifications or publication lists. Outputs: stored information

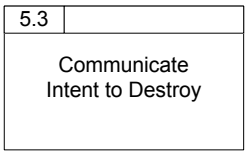
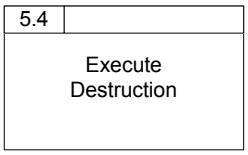
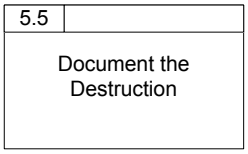
	Inputs: stored information Process: Following the communication of information placement, periodic audits must be conducted on: ■ The effectiveness of the storage system ■ The accuracy of the storage system ■ Regular system backups ■ Audits of system backups ■ Security administration ■ The accessibility of the information. Outputs: maintained information
	Inputs: maintained information Process: Following the communication of information placement, periodic audits must be conducted on: ■ The condition of the storage location ■ The functionality of the storage location ■ The deterioration/health of the information ■ The integrity of the storage system ■ The implementation of media conversion/refreshing ■ The verification of converted/refreshed information ■ The fulfillment of the life cycle of the information. The above steps in the storage process must be documented and adjustments made for emerging issues. This managed information may become waste or new information to be sent through the entire information management process. Outputs: managed information

	Inputs: managed information Process: Retrieved information is obtained from managed information by locating and ensuring the managed information meets the retrieval need. The retrieved information is removed, reproduced or viewed depending on the nature of the business need and access restrictions. Once the information is removed, reproduced or viewed, it is considered retrieved. The need for retrieved information is determined by requirements inherent in the business function or activity. The need may be communicated person to person as a request or may be expressed individually via technology or any means that enables the requestor to identify the needed information. Outputs: retrieved information
	Inputs: managed information Process: The managed information identified by the search of applicable metadata results in the identification of its storage location. Once the location is identified, the information is considered located. Outputs: located information
	Inputs: located information Process: The located information is verified by comparing it with the information needed. For example, the user would verify the retrieved information meets the needs of the information requested. Outputs: verified information
	Inputs: verified information Process: Verified information may be reproduced depending on the business requirement and access restrictions. Outputs: retrieved information

	Inputs: verified information Process: Verified information may be removed from its storage location permanently by entering the destroy process or verified information may be removed from its storage location temporarily depending on the business requirements and access restrictions. This information is typically handled in a subtask tracking routine within the process and is returned to its proper storage location accordingly. Outputs: retrieved information
	Input: verified information Process: Verified information may be viewed depending on the business requirement and access restrictions. Outputs: retrieved information
	Inputs: retrieved information Process: Retrieved information is converted into distributed information through identifying the delivery requirements, preparing the deliverables, and delivering the information. Outputs: distributed information
	Inputs: retrieved information, failed delivery information Process: This process takes the retrieved information and identifies what the information is and the dissemination method. The dissemination method should include determination of predefined requirements establishing when, to whom, how and in what format the information is to be delivered as well as the appropriate security controls associated with the distribution. Outputs: delivery requirements, retrieved information

	Inputs: delivery requirements, retrieved information Process: Preparation of the deliverables can include: ■ Making paper copies ■ Creating CD—ROM(s) ■ Converting from one format to another ■ Producing a transmittal letter. Outputs: deliverables
	Inputs: deliverables Process: The information may be delivered as follows: ■ U.S. mail ■ Electronically ■ Interoffice mail ■ E-mail ■ Hand deliver. Any failure to distribute the information would require the distribution process to be repeated until delivery is successful. Failed delivery of information can be caused by any of the following: ■ Loss of the information (paper) ■ Illegibility of the information ■ Corrupted media (CD or electronic image) ■ A broken linkage in the process. Outputs: distributed information, failed delivery information
	Inputs: deliverable information Process: If the information is delivered successfully the information becomes distributed information. If there is a failure to deliver the information the distribute process is repeated to determine where in the process the failure occurred. Outputs: distributed information, failed delivery information

	Inputs: removed information Process: Converts removed information to waste and generates a record of destruction by confirming information to be destroyed, determining destruction method, communicating the intent to destroy removed information, executing the destruction and documenting the destruction. Outputs: waste, record of destruction
	Inputs: removed information, confirmed list Process: Information eligible for destruction is documented on a confirmed list of information to be destroyed. The list is verified against the retention schedule in accordance with industry standards. Upon expiration of the required retention period, obtain or create a list/report of information eligible for destruction. Research items to determine if retention requirements have been modified by regulatory changes or new/revised business or legal requirements. Update the retention schedule as necessary with owner concurrence. Disposition metadata, as appropriate. Outputs: confirmed list, retrieved information
	Inputs: retrieved information Process: The method of destruction will be based on the media type of the information to be destroyed; e.g., microforms could be shredded/marked through, and hardcopy could be shredded or recycled. Destruction methods are usually preestablished during the identification process. Use the confirmed list to verify the records to be destroyed. Outputs: destruction method

	Inputs: confirmed list Process: Uses the confirmed list to communicate the intent to destroy. The destruction approval may be a positive acknowledgement or tacit agreement. Verify eligibility for destruction by notifying applicable stakeholders of pending destruction. Request information regarding pending or foreseen litigation that could require discovery/production of information targeted for destruction. Contact, at a minimum: ■ Information owner ■ Law department/legal representative. Outputs: agreement
	Inputs: agreement, destruction method, confirmed list, removed information Process: Upon receipt of the agreement to destroy, removed information is converted to waste in accordance with established method of destruction and a list of destroyed information is generated. Outputs: waste, list of destroyed information
	Inputs: list of destroyed information Process: Converts the list of destroyed information into an authenticated record of destruction. Each piece of information on the list of destroyed information is converted to a record of destruction. This record of destruction must have an identifier and details on how and when the information was destroyed. The record of destruction is processed via the information management process. Outputs: record of destruction

APPENDIX A

Glossary of Terms and Definitions

Accept: Information that has successfully passed a verification process and found to have met minimum allowable criteria for usability, such as appropriate review and approval cycle completion.

Access: Right, opportunity, means of finding, using or retrieving information.

Authentication: The act of authenticating; the giving of proof of authority or certifying the quality of being valid, authentic/genuine; the act of attesting that the information is legible, complete and an accurate representation of work.

Benchmarking: The practice of identifying beneficial practices, comparing performance standards and discovering innovative thinking or approaches; a process of comparing products, processes and practices against the toughest competitors or those companies recognized as industry leaders.

Business Requirements: Business-related needs such as budget, schedule or resource restraints that necessitate actions in the information management process.

Classification: Systematic identification and arrangement of business activities and/or information into categories according to logically structured conventions, methods and procedural rules represented in a classification system.

Consider (versus shall): Denotes an action that **should** be taken into account for inclusion into a process, method and procedure.

Context: Framework applied to information that provides meaning. Applying context to information explains the situation or circumstances that lead to a definition/understanding of the information in the applied situation.

Continuous Improvement: The ongoing betterment of a process based on constant measurement and analysis of results produced by the process and use of that analysis to modify the process. Continuous improvement includes the act of monitoring and measuring processes and products against policies, objectives and requirements for the product and reporting the results as well as taking the appropriate actions to make the necessary adjustments to improve the processes and products.

Conversion: Process of changing information from one media to another or from one format to another.

Destruction: Process of eliminating or deleting information, beyond any possible reconstruction. The destroy process converts removed information to waste and a record of destruction by confirming information to be destroyed, determining destruction method, communicating the intent to destroy removed information, executing the destruction and documenting the destruction.

Disposition: Range of processes associated with implementing retention, destruction or transfer decisions that are documented in disposition authorities or other instruments.

Distribute: Deliver information for organizational use. In response to a communication, retrieved information is distributed by identifying delivery requirements, preparing the deliverable and delivering the retrieved information. In the event of a failed delivery, the activities are repeated until delivery is achieved.

Document: Organized collection of information or objects that can be treated as a unit.

IDEF0: “Integrated Definition for Functional Modeling 0” is a formal process modeling nomenclature and methodology, that describe the activities and processes that make enterprise wide and product-data based information flows, in a specific application context and is used to analyze composite, multi system and multi functions team processes.

Identify (Identifier): The act of assigning a unique designator such as a number to information.

IEEE: Institute of Electrical and Electronics Engineers is a professional engineering association established for the professionalization, education and career advancement of engineers and serves as an international standards body.

Index: A separate collection of information arranged to make it easier to locate relevant information. This can be a manual or automated listing arranged differently from the original information to speed retrieval of the original information or related information.

Information: Data placed in context.

Information Management: The costs and activities that comprise the formal process by which information important to the business is generated, revised, received, stored, retrieved, distributed and destroyed. In addition, the process as defined in the SNPM includes office-related activities such as keying, filing, mail processes, maintaining office supplies, reproduction and fax services, and other administrative support activities.

Location: An identifier associated with the placement of information.

Managed Information: Unmanaged information that has been received and stored as part of the formal information management process.

Maintain: The processes and operations involved in ensuring the security and integrity of information.

Media: The format for information that can take various forms. Such forms can include microforms, paper or various electronic formats.

Metadata: Data describing context, content and structure of information.

Migration: Act of moving information from one system or media to another, while maintaining the information's authenticity, integrity, reliability and usability.

Performance Measurement: A management technique for evaluating the performance of a particular function or person.

Place: Locating information in its designated storage location.

Process: A sequence of behaviors or series of steps designed to produce a product or service; tangible structures established to direct the behavior of individuals in a predictable, repeatable fashion as they perform various tasks.

Process Owner: The individuals who coordinate the various functions and work activities at all levels of a process, regardless of the functional organizations involved. They have the resource control and job skills to evaluate overall process operation and to evaluate potential process improvements. They design and manage the process end to end so as to ensure optimal overall performance. Process owners are responsible for ensuring the total process is both effective and efficient, and that appropriate performance measures are in place to measure the process accordingly and ensure performance is continually improved.

Protect: A sub-process of maintaining information that deals with the security and integrity of stored information.

Received Information: Unmanaged and returned information becomes received information after it has been identified, accepted, classified, formatted and transferred to storage.

Record of Destruction: A document that records the destruction of a specific piece of information.

Records Management: Discipline responsible for the efficient and systematic control, receipt, maintenance, use and disposition of records, including processes for capturing and maintaining evidence of and information about business activities and transactions in the form of records.

Reject: Information that has not passed verification processes or met minimum allowable criteria for usability.

Retention: The designated length of time that information is kept to fulfill legal, regulatory and business requirements. Retention schedules provide the authority for the final disposition of information.

Retrieve: To obtain managed information through location, verification and access.

SNPM: *The Standard Nuclear Performance Model – A Process Management Approach* is an industry guiding document that is the result of a six-year effort by the Nuclear Energy Institute, the Institute for Nuclear Power Operations and the Electric Utility Cost Group to publish and maintain a comprehensive model that includes all INPO and NEI process descriptions, an aligned set of activity-based costing definitions for use in submission of cost data to the EUCG and an aligned set of key performance indicators consistent with INPO guidance and supported by industry process owners known as Communities of Practice.

Storage: Storage receives information, including associated metadata, which requires an identification location to be determined. The information is placed in its determined storage location.

Tracking: Creating, capturing and maintaining information about the movement and use of information.

Transform: Conversion of media format, where appropriate.

Unmanaged Information: Data not managed by the process described in NEI-AP-907.

Waste (Disposal Process): Waste is the output of the destruction process that can be accomplished in many ways depending on the security handling requirements of the information. Waste may take the form of shredded, burnt, liquefied, pulped, macerated or recycled by-product materials.

APPENDIX B

Task Force List

Mrs. Amy Barriero Nuclear Energy Institute Sr. Project Manager, Plant Performance Improvement Tel: (202) 739-8022 Email: alb@nei.org	Ms. Susan K. Hunn, CRM San Onofre Nuclear Generating Station Southern California Edison Tel: (949) 368-6935 Email: hunnsk@songs.sce.com
Mr. Dan Bierbrauer Constellation Generation Group Director, IT Records and Document Systems Tel: (315) 349-4305 Email: Daniel.Bierbrauer@nmp.cn.com	Ms. Marty J. Johnson Bechtel SAIC - Yucca Mountain Project Deputy Manager, Records Management and Document Control Tel: (702) 295-6634 Email: marty_johnson@ymp.gov
Mr. Mark Breiner PPL Susquehanna, LLC Supervisor, Document Control Services Tel: (610) 774-7691 Email: mrbreiner@pplweb.com	Mr. Joel Keown Southern California Edison Manager, Document Management Services Nuclear Information Services Tel: (949) 368-2604 Email: Keownja@songs.sce.com
Ms. Laura Burba Duke Energy Technical Specialist Tel: (704) 382-3171 Email: ltburba@duke-energy.com	Mr. Gerald Lewis STP Nuclear Operating Company Staff Consultant, RMS Tel: (361) 972-8338 Email: glewis@stpegs.com
Mr. Glenn Cox Spescom Software Vice President, Business Development Tel: (203) 271-2331 Email: gcox@spescom.com	Ms. Kristina M. McConnell FirstEnergy Perry Nuclear Power Plant Supervisor, Nuclear Procedures and Records Tel: (440) 280-5398 Email: kmmcconnell@firstenergycorp.com
Mr. James F. Heilman South Carolina Electric and Gas Company IT Coordinator Tel: (803) 345-4262 Email: jheilman@scana.com	Mr. John D. McIntire Nuclear Energy Institute Sr. Director, Information Technology Tel: (202) 739-8041 Email: jdm@nei.org

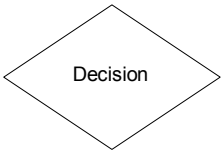
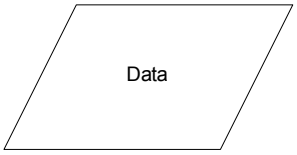
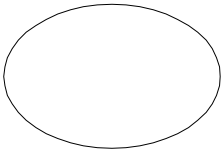
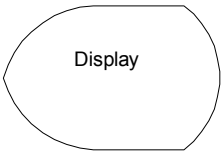
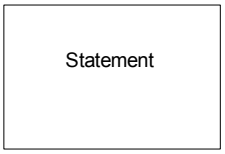
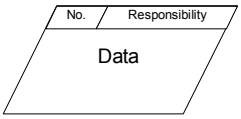
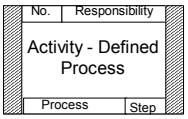
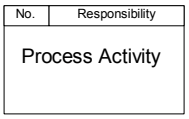
Ms. Dianna A. Miller Entergy - River Bend Station Superintendent, Administrative Services NEI-AP-907 Project Team Leader Tel: (225) 381-4174 Email: dmille2@entergy.com	
Ms. Elizabeth Nelson Progress Energy - Crystal River 3 Supervisor, Nuclear Records and Document Control Tel: (352) 563-4927 Email: Elizabeth.Nelson@pgnmail.com	
Mr. Michael D. Stout PPL Susquehanna, LLC Supervising Engineer Tel: (610) 774-7731 Email: mdstout@pplweb.com	
Mr. Randall O. Taylor, MIT TXU Energy Administrative Services Manager Tel: (254) 897-8287 Email: rtaylor3@txu.com	
Ms. Maureen E. Vogan Sargent & Lundy, LLC Senior Information Manager Records Management Process Owner Tel.: (312) 269-2149 Email: Maureen.e.vogan@sargentlundy.com	

APPENDIX C

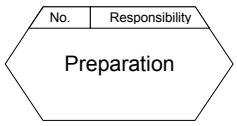
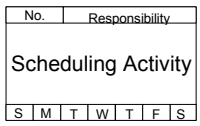
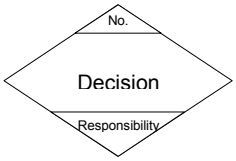
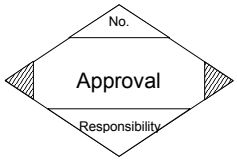
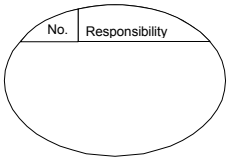
Process Modeling and Flowchart Conventions

The process model was developed by interviewing industry personnel with many years of experience in this discipline and capturing their knowledge by using a simplified version of the Institute of Electrical and Electronics Engineers standard Integrated Definition for Functional Modeling 0 (IDEF0) process modeling convention. This model was then converted to the standard flowchart methodology used by Nuclear Energy Institute. The resulting model consists of a four-tiered hierarchy of documents as follows:

1. Level 0 “Context” flowchart displays the data flow and requirements that interface with the overall information management (IM) process. At this level significant input, controls and outputs to the IM process are shown.
2. Top-level flowchart blocks are numbered 1.0, 2.0, 3.0 and so forth using the rectangle basic flowchart process icon. ALL blocks except terminators are numbered, unless combined with a decision block and highlighted to (indicate the decision process step).
3. Intermediate and lower-level flowchart blocks are numbered consistently with the corresponding higher-level block. For example, intermediate-level expansion of block 4.0 would be 4.1, 4.2, 4.3 and so forth.
4. Activities involving two work groups, with one performing and the other approving, are shown using the process activity block for the task performance and an approval diamond for the approval activity. The two blocks are connected in series.
5. Interface connections to another process are shown on the intermediate-level flowchart only, not the top level.
6. Process data blocks are used to show processing of information/data/to/from key points within a process. The text in such a block indicates an action to be taken within the process, such as “update equipment history.”
7. Intermediate and lower-level flowchart blocks as well as Level III text show or discuss the inputs, outputs, and drivers:
    - Inputs represent material or information transformed or consumed by the process to produce an output.
    - Outputs represent materials or information produced by the activity.
    - Drivers represent the external requirements that dictate entry into an activity.

Name: Decision **Prompt:** Top-Level Diagram Decision 	**Name:** Activity **Prompt:** Top-Level Diagram 	**Name:** Data **Prompt:** Top-Level Diagram Data Input or Output 
Name: Top MIT **Prompt:** Top-Level Diagram Monitoring, Inspection, Test, Etc. (MIT) 	**Name:** Step No. **Prompt:** Top-Level Diagram Step Identifier 	**Name:** Terminator **Prompt:** Universal symbol representing the start or end of a process and a location where a specific number of transactions from an unspecified source enter the process 
Name: Display **Prompt:** Universal symbol representing data that is displayed for human use, such as data on a monitor screen 	**Name:** Connector **Prompt:** Universal symbol representing an exit to, or entry from, another part of the same process 	**Name:** Statement **Prompt:** Universal symbol representing statements of conclusion, intent, or direction 
Name: Data **Prompt:** Intermediate-level symbol representing data that is an input to or an output from a process activity 	**Name:** Predefined Process **Prompt:** Intermediate-level symbol representing a connection to/from a named process, such as Configuration Control or Work Control* 	**Name:** Process Activity **Prompt:** Intermediate-level symbol representing a process activity that includes data fields for step number and worker level 

* Indicates that a quantifiable number of transactions move from one process to the other.

Name: Evaluation **Prompt:** Intermediate-level symbol representing an evaluation performed, such as root cause determination 	**Name:** Preparation **Prompt:** Intermediate-level symbol representing preparations such as planning, job briefings, collecting equipment, etc. 	**Name:** Schedule **Prompt:** Intermediate-level symbol representing interface with the integrated schedule 
Name: Process Decision **Prompt:** Intermediate-level symbol representing a process decision or switching-type function 	**Name:** Approval **Prompt:** Intermediate-level symbol representing process authorization and control decision 	**Name:** MIT **Prompt:** Intermediate-level symbol representing monitoring, inspection, testing, validation, etc. (MIT) 

APPENDIX D

Performance Measures

Industrywide Key Performance Indicators

Industrywide key performance indicators are provided for process performance comparison and as comparative analytical tools.

- The definition of the indicator clearly identifies the purpose for the measure, the quantity being measured, and the source of the data.
- Rolling averages may be used to correct aberrations in data caused by uneven schedule loading or brief periods of high emergent work.
- Indicator definitions are provided to help ensure consistent reporting to the extent possible.
- Measurement periods are based on individual site fuel cycle but are rolling periods covering the immediately preceding months equal to the site's fuel cycle.

Industrywide Key Performance Indicator for SS003 Provide Information Management (IM) Services

Sub-Process: SS003—Provide Information Management Services - All
Title: Cost of Information Management per Employee
Definition: Total site cost to perform information management process activities, normalized to eliminate variations in staff size and wage rates
Unit of Measure: Dollars per employee
Reporting Level: Site
Reporting Frequency: Annual
Reason For Reporting: To provide a normalized site total cost that allows companies to trend yearly cost to perform information management processes or benchmark against similar sites

Calculation:
Total site cost to perform IM process activities divided by total site population in Full Time Equivalents (FTE).

- FTE man-hours performing IM process activities at a normalized $50/hour rate, plus
- Total site nonpayroll costs for performing IM activities (for example materials and services, outsourcing, license fees, maintenance agreements, service level agreements with corporate support organizations, etc.).

Calculation Example:

100,000 FTE man-hours per year x $50/hr	$5.0M
Computer hardware and software costs, including leases	$2.0M
Contractor (not located on site) costs for IM activities	$0.5M
Software maintenance agreement annual payments	$0.2M
Corporate IS/IT back charges via service level agreements	$4.0M
Total site cost for IM process activities	$11.7M

Note: The 100,000 man-hours in this example include man-hours by all site organizations to receive, store, retrieve, distribute or destroy managed information. Total site population is defined as all facility FTEs including corporate and general office allocation regardless of number of units at site.

Calculation Example Results:

$$\text{Cost of IM per employee} = \frac{\text{Total site cost for IM process activities}}{\text{Total site Population in FTE}}$$

$$\text{Cost of IM per employee} = \frac{\$11.7 \text{ Million}}{1200 \text{ FTE}} = \$9{,}750/\text{FTE}$$

Process Diagnostic Measures for Information Management Process (NOT Industrywide)

The following diagnostic measures are listed as useful indicators for assessing the information management process. The measures are provided and intended to be used as a menu of possible analytical tools to be selected and used by process owners when performing self-assessments of the IM processes. The expectation is that measures will be selected based on the need of the organization. It is a good business practice to have a minimum set of diagnostic measures for each Level II process area. It is recognized that some current systems may not support measurement of all the diagnostic measures suggested.

Process Diagnostic Measures for SS003 Provide Information Management Services

Diagnostic Title: Information Management Process Health Indicator
Definition: A process health indicator using INPO/NRC guidelines, i.e., colors for each Level I activity, based on diagnostic measures associated with IM activities, such as those listed below
Unit of Measure: Colors for each process activity (Receive, Store, Retrieve, Distribute, and Destroy Level I activities), similar to NRC key performance indicators
Reporting Frequency: Monthly
Reason for Reporting: To provide diagnostic measures for each activity associated with information management processes. This will provide opportunities for continuous process improvements.
Calculation: Each facility develops specific diagnostics. The color assigned to each activity should be developed by subjective evaluation of lower tier diagnostic measures related to that activity.

Diagnostic Title: Utilization Rate (Retrieve Information Level I activity)
Definition: Percentage of retrieved information versus the amount of information stored
Unit of Measure: Percentage
Reporting Frequency: Monthly
Reason for Reporting: This is a measure of how frequently stored information is used. It is helpful in determining the most cost-effective storage solution. For example, access data for vendor manuals can help determine if there are manuals in storage that are not needed and can be destroyed in accordance with retention requirements.
Calculation: (Retrieved information / stored information) x 100

Diagnostic Title: Level One Activity Efficiency (Receive, Store, Retrieve, Distribute, and Destroy Level I activities)
Definition: Percentage of output for each Level I activity
Unit of Measure: Percentage
Reporting Frequency: Monthly
Reason for Reporting: This is a measure of relative processing efficiency for each activity in the process and is helpful in determining where process improvement could be gained.
Calculation: Level One Activity Efficiency = (input/output) x 100

Diagnostic Title: Rejected Information Rate (Receive Information Level I activity)
Definition: Percentage of received information returned to information originator.

Unit of Measure: Percentage
Reporting Frequency: Monthly
Reason for Reporting: This is a measure of the quality of the information received and includes such things as appropriate format, media, legibility, etc. If these criteria are not met, the information is returned to the originator.
Calculation: (Rejected information / received information) x 100

Diagnostic Title: Information Retrievability (Retrieve Information Level I activity)
Definition: Percentage of requested information that has been retrieved
Unit of Measure: Percentage
Reporting Frequency: Monthly
Reason for Reporting: This measures information integrity by tracking the frequency with which requested information is successfully retrieved. A case where incorrect data entry of location metadata results in the inability to retrieve a document, or a case where a database record is deleted in error would be a failed retrieval.
Calculation: (Retrieved information / requested information) x 100

Diagnostic Title: Destruction Rate (Destroy Information Level I activity)
Definition: Percentage of actual information destroyed versus eligible information to be destroyed
Unit of Measure: Percentage
Reporting Frequency: Monthly
Reason for Reporting: This measure helps to determine whether a work backlog is developing. It may be important because information that has passed its retention period but has not been destroyed can become a legal liability.
Calculation: (Eligible information to be destroyed / actual information destroyed) x 100

Diagnostic Title: IT System Availability*

Diagnostic Title: IT System Reliability*

*For details and calculation methods for information technology system availability and reliability, see the Information Technology Process (SS001), Section Systems and Services performance indicators. Pending issue of Revision 4 of the Standard Nuclear Performance Model, contact the NITSL Community of Practice leader (see SNPM Appendix F1) for detailed information.

APPENDIX E

References

The following documents and books were used as resource materials in the development of PDG01.

10 CFR 50 App. B, *Quality Assurance Criteria for Nuclear Power Plant and Fuel Reprocessing Plants*

ANI 80-1A, *Nuclear Liability Insurance Retention*

ANSI N18.7, *Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants*

ANSI N45.2.9, *Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants*

ASME NQA-1, *Quality Assurance Requirements for Nuclear Facilities*

EUCG, Inc., *Standard Nuclear Performance Model*, Revision 5, 2008

GL 88-18, *Plant Record Storage on Optical Disks*

ISO Standard 15489-1, *Information and Documentation – Records Management, Part 1: General*

ISO Technical 15489-2, *Information and Documentation – Records Management, Part 2: Guidelines*

NEI/NIRMA *SS003 Nuclear Records Management Benchmarking Report, March 2002*

Nuclear Information & Records Management Association (NIRMA) Technical Guideline TG11, *Authentication of Records and Media*

NIRMA TG15, *Management of Electronic Records*

NIRMA TG16, *Software Configuration Management*

NIRMA TG21, *Required Records Protection, Disaster Recovery, and Business Continuation*

NRC Regulatory Issue Summary 2000-18, *Guidance on Managing Quality Assurance Records in Electronic Media*

Regulatory Guide 1.28, *Quality Assurance Program Requirements (Design and Construction)*

Regulatory Guide 1.33, *Quality Assurance Program Requirements (Operation)*

Regulatory Guide 1.88, *Collection, Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records*

APPENDIX F

History and Revisions

In 1998, the Nuclear Energy Institute (NEI) published *The Standard Nuclear Performance Model – A Process Management Approach* (SNPM) in cooperation with Institute of Nuclear Power Operations (INPO), Electric Power Research Institute (EPRI) and Electric Utility Cost Group (EUCG). This created a simple and effective set of processes to support an industry focus on efficiency and continuous improvement. The model became the controlling reference for all subsequent NEI benchmarking. The SNPM includes:

- INPO and NEI Process Descriptions
- An aligned set of activity based costing definitions for use in submission of cost data to the EUCG
- An aligned set of industrywide key performance indicators (KPIs) consistent with INPO guidance and supported by industry process owners' groups known as Communities of Practice (CoP).

INPO-AP-907 Revision 0, "Processes and Procedures", was originally published by the Institute of Nuclear Power (INPO) in May 1997. In December 2001, the decision to transfer industry ownership of AP-907, "Process and Procedures" from INPO to NEI was agreed upon and documented

In August 2002 the Nuclear Information Management Strategic Leadership (NIMSL) steering committee was formed to enable leadership actions in the sub-process area "SS003 - Provide Records Management and Document Control". In November 2002, NIMSL submitted to NEI a proposal to rename SS003 to "Provide Information Management Services" to more accurately reflect the changing trends within the industry. The SNPM Task Force agreed and the updated cost definition was included in the third revision to the SNPM, dated April 2003.

NEI-AP-907 Revision 1 replaced INPO-AP-907 Revision 0 and focused on Information Management (IM) and transferred responsibility for the IM Process Description from INPO to NEI. This aligned the process with the Standard Nuclear Performance Model and develops content specific to information management activities.

In 2008 NEI decided to no longer sponsor business process activities. In 2009 NIMSL became a business unit of NIRMA. NEI agreed that this document would be maintained by NIRMA in the future and this was republished with only minor edits as PDG01-2010. For this reason the original team members are shown, as no substantive content changes were made. Only formatting changes were made by NIMSL.