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Control of the Electronic Management of Information

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Office of Government Services

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Office of Civilian Radioactive Waste Management

QA: Q/


PROCEDURE

CONTROL OF THE ELECTRONIC MANAGEMENT OF INFORMATION


LP-SV.2Q-OCRWM

Revision 0 ICN 2

Effective Date: 04/02/2007

Preparer: 
A. Boone

3/29/07
Date

Approval: 
R. Stalmery, Jr.
Director
Office of Government Services

3/29/07
Date

OCRWM

Type: Line Procedure

Title: Control of the Electronic Management of Information

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1.0 PURPOSE

This procedure establishes the responsibilities and provides direction for developing and evaluating the adequacy of process controls on specific uses of electronically stored information. These uses include, but are not limited to, information used in design input, developed as design output, or developed as input to or output from scientific investigation or performance assessment modeling and analysis. This pertains to information that resides in an electronic information management system or on electronic media.

2.0 APPLICABILITY

This procedure applies to the Office of Civilian Radioactive Waste Management (OCRWM) and OCRWM direct-support contractors who use electronic media to store or manipulate information within their processes to support work performed to *Quality Assurance Requirements and Description* (QARD), DOE/RW-0333P, requirements.

This procedure shall be invoked and implemented:

- a. Upon the effective date of this procedure, or
- b. If changes are made to an applicable process, process function, or procedure (e.g., AP-5.1Q, *Procedure Preparation, Review, and Approval*, or site specific implementing procedure) that has been previously evaluated, or
- c. Prior to the implementation of any new applicable work, process, or process function that is not controlled by an approved procedure containing the controls as specified in Section 5.0 of this procedure.

3.0 OTHER DOCUMENTS NEEDED/REFERENCES

- *Quality Assurance Requirements and Description* (QARD), DOE/RW-0333P
- AP-5.1Q, *Procedure Preparation, Review, and Approval*
- AP-17.1Q, *Records Management*
- AP-SEC-001, *Identification, Protection, Distribution, and Use of Sensitive Unclassified Information*

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4.0 RESPONSIBILITIES

4.1 The Director, Office of Government Services, is responsible for the preparation, change, maintenance, and approval of this procedure.

4.2 The following organizations or positions are responsible for activities identified in Section 5.0 of this procedure:

Responsible Manager (or Designee)

5.0 PROCESS

Acronyms and abbreviations used in this procedure are defined in Attachment 1, Acronyms and Abbreviations. Terms used in this procedure are defined in Attachment 2, Definitions.

Process Outline

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Note: A Condition Adverse to Quality discovered or created during the implementation of a procedure is submitted to the Corrective Action Program in accordance with AP-16.1Q, Condition Reporting and Resolution.

5.1 EVALUATION OF PROCESSES/PROCESS FUNCTIONS/WORK

Responsible
Manager

- [1] **Evaluate** the processes/process functions/work using Subsections 5.2 and 5.3.
- [2] **Document** the evaluation by completing the following steps:
 - a. **Identify** the processes/process functions/work being evaluated by completing Section A of Attachment 3, Process Control Evaluation for the Electronic Management of Information.
 - b. **Complete** Section B1 of Attachment 3 by answering each question with "Yes" or "No."
 - c. **IF** each question in Section B1 of Attachment 3 is answered "No,"
THEN proceed to Step 5.1 [2] g.
 - d. **IF** any question in Section B1 of Attachment 3 is answered "Yes,"
THEN complete Section B2 by answering the questions with "Yes," "No," or "N/A."
 - e. **IF** any question in Section B2 of Attachment 3 is answered "No,"
THEN document the results of the evaluation by completing Section C of Attachment 3.
 - f. **IF** the evaluation determines that an existing procedure requires changes or identifies the need for a new procedure,
THEN initiate a Document Action Request in accordance with AP-5.1Q.
 - g. **Sign AND date** the form.
 - h. **Send** the original form to the Records Processing Center (RPC) in accordance with Section 6.0.

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5.2 ENSURING ACCURACY AND COMPLETENESS OF INFORMATION

Responsible
Manager

Ensure, when evaluating the processes/process functions/work, that current process controls are appropriate to:

- Protect the information suitably from damage or destruction and ensure that information is readily retrievable during its prescribed lifetime, using examples in Section I of Attachment 4, Process Control Examples, as appropriate.
- Describe adequately how information will be stored with respect to backup medium, conditions, location, retention time, security, and access, using examples in Section II of Attachment 4 as appropriate.
- Identify storage and transfer media properly as to source, physical and logical format, and relevant date (i.e., date written), using examples in Section III of Attachment 4 as appropriate.
- Maintain the accuracy and completeness of the information placed into, or modified within, an electronic information management system, or placed onto, or modified on, electronic media, using examples in Section IV of Attachment 4 as appropriate.
- Ensure that data transfers are error free, or within defined permissible error rates, using examples in Section V of Attachment 4 as appropriate. To ensure error-free data transfers, the process function must be suitable to the type of information that is being transferred, guarantee that no information is lost in transfer, and guarantee that the input is recoverable from the output.

5.3 SECURITY OF INFORMATION

Note: Steps 5.3 [1] and [2] may be performed in any order.

Responsible
Manager

- [1] **Evaluate** the processes/process functions/work to ensure that current process controls are appropriate to maintain security and integrity of information when placed into, or modified within, an electronic information management system, or when placed onto, or modified on, electronic media, using examples in Section VI of Attachment 4 as appropriate.

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Note: AP-SEC-001 contains the process for identification of Sensitive Unclassified information.

- [2] **Evaluate** the electronic information produced from work/processes/process functions in accordance with AP-SEC-001 to determine if any of the information is Sensitive Unclassified.
- [3] **IF** any Sensitive Unclassified electronic information is produced from the work/processes/process functions,
- THEN evaluate** the processes/process functions/work activity to ensure that current process controls are in accordance with AP-SEC-001.
- [4] **Evaluate** the processes/process functions/work to ensure that current process controls are in accordance with AP-SEC-001 for distribution of electronic media to the public and for distribution of electronic media to the U.S. Nuclear Regulatory Commission.

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6.0 RECORDS

The records listed in Subsection 6.1 shall be collected and submitted to the RPC in accordance with AP-17.1Q as individual records or included in a records package, as specified.

6.1 QA RECORDS

Individual Records:

Process Control Evaluation for the Electronic Management of Information

6.2 NON-QA LONG-TERM RECORDS

None

6.3 NON-QA SHORT-TERM RECORDS (THREE YEARS OR LESS RETENTION)

None

7.0 ATTACHMENTS

Forms attached to this procedure are controlled and distributed as full-size pages separate from this procedure and may be copied for use when implementing this procedure. The change history for this procedure is included as Attachment 5, Change History.

- 1 Acronyms and Abbreviations
- 2 Definitions
- 3 Process Control Evaluation for the Electronic Management of Information (Form LSV2-1)
- 4 Process Control Examples
- 5 Change History

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Attachment 1

Acronyms and Abbreviations

ICN Interim Change Notice

OCRWM Office of Civilian Radioactive Waste Management

QARD Quality Assurance Requirements and Description

RPC Records Processing Center

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Attachment 2

Definitions

Data File—An organized collection of related information, usually arranged in logical records that are stored together and treated as a unit; related numeric, textual, or graphic information that is organized in a strictly prescribed form or format.

Database—A collection of previously distinct data (not created by the database) which have been logically organized to facilitate data access (QARD). For the purposes of this procedure, a collection of interrelated information stored together in one or more computerized data files.

Electronic Information Management Systems—Computer based systems, including databases, file systems, and similar systems used to manage information.

Electronic Media—Media used to store, maintain, or transmit information that only a computer or other electronic device can read or process, such as floppy disks, optical disks, hard drives, and magnetic tape.

Information—A representation of data, facts, concepts, or instructions in a manner suitable for communication, interpretation, or processing by humans or by automatic means.

Information Systems—A discrete set of information resources organized for the collection, processing, maintenance, transmission, and dissemination of information in accordance with defined procedures.

Process—A series of actions that achieves an end result or accomplishes work (QARD).

Process Control—Those controls placed on the series of actions that achieve an end result or accomplished work.

Process Function—An individual action or step within a process.

Responsible Manager—For the purposes of this procedure, the Responsible Manager for a procedure is the person who owns the procedure. For a work activity, it is the manager responsible for the work activity.

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Attachment 3

Process Control Evaluation for the Electronic Management of Information

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT		QA: QA	
PROCESS CONTROL EVALUATION FOR THE		Page of	
ELECTRONIC MANAGEMENT OF INFORMATION			
A. Procedure/Work Identification: (check one)			
<input type="checkbox"/> Procedure (identify process procedure number, title, revision and ICN level being evaluated), or			
<input type="checkbox"/> Work (identify by work package number, Technical Work Plan, technical product, etc., including title and revision)			
B1. Processes/Process Functions/Work Evaluation			
	Yes	No	
1. Will, or does, the process/process function/work depend on a form of electronic media to store, maintain, retrieve, modify, update, or transmit information?	<input type="checkbox"/>	<input type="checkbox"/>	
2. Will, or does, the process/process function/work manage, control, or use an electronic database, spreadsheet, set of files, or other holding system for information?	<input type="checkbox"/>	<input type="checkbox"/>	
3. Will, or does, the process/process function/work transfer information electronically from one location to another? (The method may be File Transfer Protocol, electronic download, tape to tape, disk to disk, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	
4. Will, or does, the process/process function/work produce any Sensitive Unclassified electronic information?	<input type="checkbox"/>	<input type="checkbox"/>	
<i>If the answers to Section B1 are all "No", process in accordance with Paragraph 5.1 [2] g; otherwise proceed to Section B2.</i>			
B2. Processes/Process Functions/Work Compliance Evaluation			
	Yes	No	N/A
1. If any Sensitive Unclassified electronic information is produced, are the process controls in accordance with AP-SEC-001?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Does the procedure or work document provide adequate controls to protect information from damage and destruction for its prescribed lifetime?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Does the procedure or work document provide adequate controls to ensure that information is readily retrievable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Does the procedure or work document provide adequate controls to describe how information will be stored with respect to media, conditions, location, retention time, security, and access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Does the procedure or work document provide adequate controls to properly identify storage and transfer media as to source, physical and logical format, and relevant date?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Does the procedure or work document provide adequate controls to ensure completeness and accuracy of the information input and any subsequent changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Does the procedure or work document provide adequate access to controls to maintain the security and integrity of the information?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Does the procedure or work document provide adequate controls to ensure that transfers are error free or within a defined permissible error rate? (e.g., copying raw information from notebook to electronic information form, electronic media to another electronic media, or File Transfer Protocols)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>If a "No" answer is given for any question in Section B2, proceed to Section C; otherwise process in accordance with Paragraph 5.1 [2] g. Mark "N/A" for those items that are not applicable to the specific process or work activity.</i>			
C. Results of Evaluation			
Provide a summary of the "as-is condition," proposed remedial actions, and expected completion date of document revision, for each item in Section B2 that was indicated as "No."			
<h1>EXAMPLE</h1>			
Responsible Manager			Date

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Attachment 3

Instructions for Process Control Evaluation for the Electronic Management of Information

SECTION A Procedure/Work Identification

This section indicates that an evaluation is being performed on an existing procedure or work.

Identify the procedure number, title, revision, and Interim Change Notice (ICN) level being evaluated, or

Identify the work/process/process function being evaluated by title and the appropriate revision level (e.g., Technical Work Plan, controlled document, or technical product).

SECTION B1 Processes/Process Functions/Work Evaluation

Answer Questions 1 through 4.

If the answers are all "No," process in accordance with Paragraph 5.1 [2] g. of this procedure.

SECTION B2 Processes/Process Functions/Work Compliance Evaluation

Answer Questions 1 through 8.

Answer "Yes" if the question is applicable and the process is adequate. Answer "No" if the question is applicable but the process is not adequate. Answer "N/A" if the question is not applicable to the process. If a "No" answer is given for any question, complete Section C.

SECTION C Results of Evaluation

Provide a summary of the "as-is condition," proposed remedial actions, and expected completion date of document revision for each question in Section B2 answered with "No."

Sign and date the form and send the original to the RPC.

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Attachment 4

Process Control Examples

SECTION I - PROTECTING INFORMATION FROM DAMAGE OR DESTRUCTION

The following examples of process controls are provided for different systems and equipment:

Servers

- Access privileges are set to prevent unauthorized changes.
- Server is periodically backed up and the backups are appropriately labeled and stored.
- When putting files in a different directory or folder:
 - **To retain current access privileges**, files must be moved (e.g., dragged and dropped), not copied and pasted.
 - **To assume the access privileges of the destination directory or folder**, files must be copied and pasted, not moved (e.g., dragged and dropped).

Workstations/Personal Computers

- Access to information contained on personal computer is controlled (e.g., password protected and controlled physical access).
- Before changes are made, secured backup copies are created, appropriately labeled and stored, and kept until the changes are confirmed as correct.

Instruments

- Information is copied to a backup medium and the medium is appropriately labeled and stored.
- Any hard copy printouts generated are kept until the backup copy has been verified.

SECTION II - DESCRIBING HOW INFORMATION WILL BE STORED

The following examples of description content are provided:

- Access Controls
- Environmental protection consideration such as humidity, heat, etc.
- Location of storage (onsite, offsite)
- Media protection (how different types of media are to be stored).
- Encryption controls (for prevention of unauthorized access to sensitive unclassified or legal privileged data)

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Attachment 4

Process Control Examples (Continued)

SECTION III - IDENTIFYING ELECTRONIC MEDIA

The following examples of identification are provided:

Physical Electronic Media

- Medium type (tape, diskette, compact disc read-only-memory, etc.)
- Appropriately labeled with:
 1. Date and time backup or copy was made
 2. Source of backup (i.e., identify the computer system, instrument, or other system that was the source of the information), directory name(s), and file name(s)
 3. System utility used to perform backup
 4. Format of the backup media
 5. Markings in accordance with AP-SEC-001 if media contains any Sensitive Unclassified information.
- Method of transport (mail, courier, etc.)
- Method of integrity verification upon receipt delivery (backup listing, file checksums, application/utility for verifications, etc.)
- Method for verifying/confirming delivery of storage or transfer medium.

Non-Physical Electronic Media

- Transport mechanism (e-mail, transmission control protocol/internet protocol, Netbios, etc.)
- Utility and settings (File Transfer Protocol, copy, mail attachment, etc.)
- Method of receipt verification (visual inspection, transmission verification settings, checksums, application information integrity check, etc.).

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Attachment 4

Process Control Examples (Continued)

SECTION IV - MAINTAINING INFORMATION ACCURACY AND COMPLETENESS

The following examples of process controls are provided:

- A complete inspection of the information
- Random sampling of the information
- Checksums or cyclic redundancy checks
- Comparison of source hard copy to electronic input
- Other standards and methods, as appropriate.

SECTION V - ENSURING ERROR-FREE DATA TRANSFERS

The following examples of authorized process controls are provided:

- Check sum
- File size
- Visual verification.

SECTION VI - ENSURING SECURITY AND INTEGRITY OF INFORMATION IS MAINTAINED

The following examples of process controls are provided:

- Maintain documentation for each person with write access to the electronic information management system or electronic media, including the name and signature of the person approving such access, and the date approved.
- Implement system level or internal application controls to give individual users the appropriate level of security access to the electronic information management system or electronic media.
- Perform periodic operational security checks of the electronic information management system or electronic media to detect any unauthorized entry and other breaches in the security system that could compromise the integrity of the information.

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Change History

<u>Revision Number</u>	<u>Interim Change No.</u>	<u>Effective Date</u>	<u>DESCRIPTION OF CHANGE</u>
0	2	04/02/2007	Revised to reflect organizational changes and add language that "when a CAQ is identified, a condition report shall be initiated in accordance with AP-16.1Q."
0	1	09/23/2005	Editorial change to remove the "Draft/Draft Date: Draft B 05/09/2005" designator in the Headers of Attachments 1, 2, 4, and 5 that was inadvertently left in the procedure when it was initially issued. This editorial change will correct that error, as well as address Condition Report (CR) 6207 that identified the errors in the procedure attachments.
0	0	5/31/2005	Initial issue. Supersedes AP-SV.1Q, <i>Control of the Electronic Management of Information</i> , in response to Document Action Request D22912.