

# Advanced Photon Source

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## Managing APS Documents Policy

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- Changed reviewer from XSD Division Director to XSD Deputy Division Director
- Updated Section 4 Policy to reflect new deadline

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## Managing APS Documents Policy

### 1 Purpose

This policy sets standards that will ensure important APS documents are retained and are retrievable.

### 2 Scope

This policy covers APS documents that are required to:

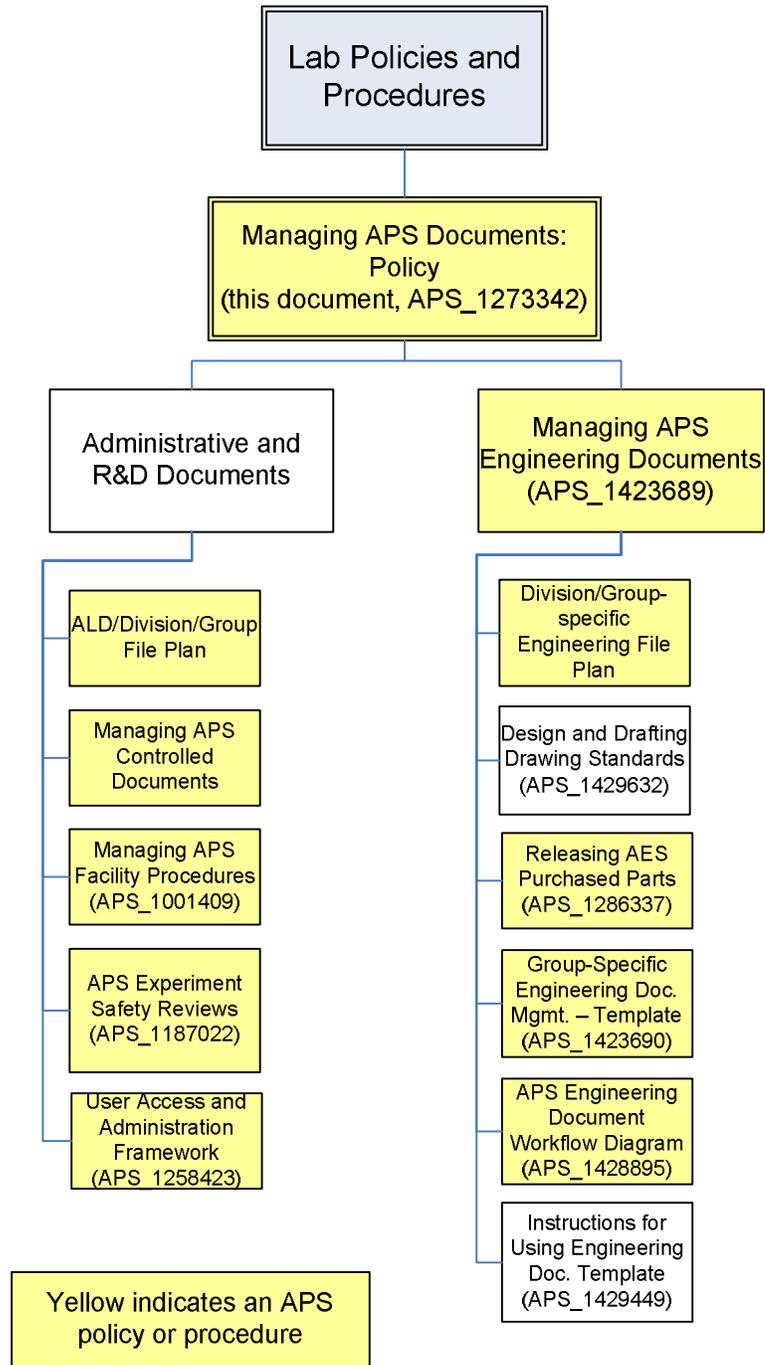
- Maintain a safe work environment;
- Maintain reliable and efficient operations; and
- Record the business and R&D activities of the APS

It ensures the APS complies with document retention requirements of Argonne and the DOE.

In general, if more than one person at the APS needs to access a document to perform their job, then the document is to be kept in an APS-approved repository.

This policy does not cover documents that if not available in an APS-approved repository, will have little or no impact or cost to the APS. In general, only the custodian of such a document will need to access it as part of their job at the APS.

[Figure 1](#) shows how the policies and procedures governing document management at the APS fit together.



**Figure 1. Policies and procedures governing APS document management.**

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## 3 Definitions

For the purpose of this policy

- *Document*: Information and its supporting media (e.g., paper or electronic)
- *Controlled Document*: A type of document identified by the APS to be managed under a formal procedure that prescribes how the document is created, revised, approved, periodically reapproved, and made available to users to avoid use of obsolete or unapproved versions. (LMS Dictionary)
- *Administrative Document*: Administrative documents record how the APS executes its business operations and managerial functions (e.g., policies, procedures, operations log books, official business communications and agreements, user registrations, beam time proposals and allocations, work authorizations, experiment safety reviews, committee records, etc.). (APS Staff)
- *Engineering Document*: The term engineering document refers to any document, drawing, sketch, file, etc., that is used to describe the design, fabrication, installation, operation, and maintenance of APS technical systems. The term “drawing” may at times be used for clarity in a specific context, for it is one type of engineering document. (APS Staff)
- *R&D Document*: R&D documents are a product of research activities (e.g., APS technical publications such as Light Source Notes) (APS Staff)
- *APS-Approved Repository*: A place/tool for collecting documents, approved by an APS Division Director. Tools typically provide for review/approval (e.g., workflow), revision controls, and accessing readable current versions (see Section 7 for required functions and Appendix A for a model description of a repository). (APS Staff)
- *Engineering Document Portal (EDP)*: The *Engineering Document Portal* is a web-based tool that allows access to all APS-approved repositories from a single browser window. Using the EDP, staff can create a collection of engineering documents that describe a specific engineering project or task in an intuitive hierarchy. Within this hierarchy, links to the actual documents are defined (repository + file ID) such that any document may be viewed from the portal. It is intended that the EDP is the primary tool to find engineering documents and will provide thorough search mechanisms across projects, groups, divisions, and engineering disciplines. (APS Staff)
- *Engineering Document Number (EDN)*: The *Engineering Document Number* is a numbering scheme that provides permanent and unique numbers for drawings, files, and documents. In many cases the use of an EDN is optional. EDNs, which are obtained from the Engineering Document Portal, are intended to be used as permanent drawing numbers and/or file names to ensure uniqueness across all repositories. For example, if the same file name were used in Vault and also PDMLink, a conflict would occur when the viewable records were created in ICMS. Use of a unique EDN for the file name will avoid such conflict. The EDN

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has a format of EDN-xx-xxxx-xx. There is no substructure or numbering convention embedded within the EDN. (APS Staff)

## 4 Policy

**All groups are expected to be following this policy by June 2013.**

This policy defines requirements that ensure:

- important documents are properly managed;
- a consistent standard for retention and retrieval of documents;
- divisions and groups have file plans that describe how their documents will be managed; and
- APS implements lab and DOE document retention requirements and complies with [LMS-PROC-1, Implementation of Document Control Requirements](#)

If a document is designated as a *controlled document* to meet project or regulatory requirements, it must be maintained in an APS-approved repository.

Documents controlled through an Argonne Laboratory-wide business system (e.g., financial, HR, travel, and procurement records) and those published in the open literature need not be managed in a local APS-managed system.

## 5 Administrative and R&D Documents

The ALD Office, each Division Office, and each APS Group (unless specially exempted by the Division Director) will maintain a file plan. Each file plan breaks down:

1. documents the organization is responsible for,
2. the APS-approved repositories in which they will be maintained, and
3. controls on the documents

See [Appendix B](#) for sample file plans.

File plans shall be:

- Reviewed and approved every 2 years by the respective Division Directors
- In the form given in [Appendix B](#)
- Managed by the APS Policy and Procedure administrators
- Maintained in the ICMS with the following metadata attributes

Field	Value
Document type	Specification
Title	<division/group> File Plan
Security Group	APS
Secure To	APSShare/PPAdmin
Division	<division>
Ownership Group	<group, if applicable>
Comments/keywords	<division/group> admin administrative file plan

The file plan records, for each type of document, the required document controls. These establish how documents are:

- *created* (e.g., online using an APS Oracle database tool, by Design & Drafting as directed by a project engineer, from a committee chair, from a source external to the APS, etc.);
- *approved* (e.g., workflow and release requirements);
- *revised* (e.g., who can check-in/check-out, document security, etc.);
- *periodically reviewed/reapproved*; and
- *accessed*, ensuring that the approved, current revision is the one available to users of the document.

The requirements for reviews, approvals, and revisions of APS documents can be included in the APS and Laboratory policies and procedures that govern the creation of the documents. Also, as determined by managers, local procedures may be implemented to govern the creation and control of documents.

A graded approach is required in the implementation of this policy. More rigor is required for safety/mission-critical documents than for documents that have limited safety or operational impact on APS operations or on experimental activities.

## 5.1 Approved Repositories for Administrative and R&D Documents

APS administrative and R&D documents may be controlled in:

1. ICMS;
2. APS Oracle database – provided the system can generate a duplicate of the original document;
3. The APS Document Control Center (DCC) – DCC may be used 1) to convert hard-copy legacy documents of limited value to an electronically viewable format and 2) to place them in an APS electronic document system;
4. Division-approved electronic and hard copy file systems. Electronic files are to be saved on APS-managed sharedrives.

## 6 Engineering Documents

Each group that produces engineering documents will create a “Group-Specific Engineering Document Management Plan” (referred to as a “group engineering file plan”). This guides the group in the details of controlling their engineering documents. The contents of this document will include:

1. The repositories that are to be used by the group
2. The appropriate workflow to be applied to a document
3. Group-specific drawing requirements, such as title block, format, etc. (if any)
4. Guidance for software applications to use for certain types of documents (if necessary)
5. Definition of a group-specific Alias Project Naming Convention (if any)
6. Definition of a group-specific Alias Document Naming/Numbering Convention (if any)
7. Definition of group-specific Search Fields or Meta-data (if any)

The procedure “Managing APS Engineering Documents” [APS 1423689](#), gives detailed information on how to complete the file plan, and how to manage engineering documents.

Group Engineering File Plans shall be:

- Reviewed and approved every 2 years by the respective Division Directors
- In the form given in [APS 1423690](#) “Group-specific Engineering Document Management Plan Template”
- Managed by the APS Policy and Procedure administrators
- Maintained in the ICMS with the following metadata attributes

Field	Value
Document type	Specification
Title	<division/group> Group Engineering File Plan
Security Group	APS
Secure To	APSShare/PPAdmin
Division	<division>
Ownership Group	<group, if applicable>
Comments/keywords	<group> engineering file plan

## 6.1 Approved Repositories for Engineering Documents

APS Engineering documents may be controlled in:

1. PDMLink (ProE models);
2. Vault (AutoCAD files);
3. The APS Integrated Content Management System (ICMS);
4. The APS Document Control Center (DCC) – DCC may be used for converting legacy documents/systems that are of limited value to convert to an electronically viewable format and placing them in an APS electronic document system
5. Division-approved Group shared file systems on APS-managed sharedrives.
6. Division-approved Group shared file systems on APS-managed sharedrives, with revision control.
7. Division-approved hard copy file systems.

### 6.1.1 PDMLink

Windchill PDMLink is a valid repository, primarily used for ProE drawings. PDMLink provides workflow tools designed specifically for the files it maintains.

The primary identifier of files in PDMLink is the full path name to the file. The file name will be the EDN # (e.g., EDN-12-1234-56.dwg). Note that since released documents from PDMLink are transferred to ICMS, the file name must be unique across APS. A more intuitive name may be assigned as the document title.

### 6.1.2 Vault

AutoDesk Vault is a valid repository, primarily used for AutoDesk products (e.g., AutoCad, Inventor, etc.). AutoDesk Vault provides workflow tools designed specifically for the files it maintains.

The primary identifier of files in Vault is the full path name to the file. The file name will be the EDN # (e.g., EDN-12-1234-56.dwg). Note that since released documents from Vault are transferred to ICMS, the file name must be unique across APS. A more intuitive name may be assigned as the document title.

### 6.1.3 ICMS

ICMS is a valid repository for any engineering document. It has the advantage of automatically providing a viewable format for many types of source documents. There may or may not be a workflow required to revise documents in ICMS (see “Managing APS Engineering Documents” ([APS 1423689](#)) Approval Workflows).

The primary identifier of files in ICMS is the ContentID, which is guaranteed to be unique.

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## 6.1.4 APS Document Control Center (DCC)

The Document Control Center is a centralized location that houses paper documents, drawings and electronic media via video, compact disks, and floppy disks. All files are revision controlled by utilizing the document change notice form (DCN). This form provides the DCC with the reasons for change, the contributor, and the document's current status (latest pending or free).

All files filtered through the Document Control Center, electronic or paper, are audited to ensure integrity and authenticity. They are associated with a number from the Work Breakdown Structure (WBS) that can be used to determine what area, project, or budget the document specifically relates to.

## 6.1.5 Group-Shared File Systems (GSFS)

Groups frequently find it highly efficient to have a shared file system where the group members store their engineering documentation. This is permitted under this policy with the following requirements:

- The group-shared file system must be a file system mounted on IT-managed clusters, e.g., oxygen, phoebus.
- The group-shared file system must be accessible on the APS intranet.
- The file permissions must be set to "world-readable."
- The file system must be identified as an engineering document repository to the IT group to ensure proper backup procedures are in place. This identification is done within the Group-Specific Engineering Document Management Plan.
- The Group-Specific Engineering Document Management Plan will give guidance for what type of documents may be stored in the GSFS.

The primary identifier of files in a group-shared repository is the full path name to the file. The file name may be EDN # (e.g., EDN-12-1234-56.dwg) or a more intuitive name (e.g., controller\_schematic.dwg). Note that the more intuitive file name need not be unique across APS because it will be referred to by its full path name (which will be unique).

## 6.1.6 Group-Shared File System plus a Revision Control System (RCS) Repository

At times, revision control of documents or drawings may be desired for those stored in group-shared file systems. For this purpose, a Revision Control System (e.g., cvs, subversion, etc.) will be used to create a repository of revisions. The group should describe a directory structure and tag name convention for use with the RCS.

The primary identifier of files in a group-shared repository is the full path name to the file. The file name may be EDN # (e.g., EDN-12-1234-56.dwg) or a more intuitive name (e.g., controller\_schematic.dwg). Note that the more intuitive file name need not be unique across APS because it will be referred to by its full path name (which will be unique).

## 6.1.7 Hard Copy File Systems

Hard copy file systems are permitted under this policy. They will normally be for legacy documentation only. They should have the following characteristics:

- Have an identified owner who is responsible for upkeep of the system
- If the file system contains sensitive information or PII the documents should be secured, e.g. in a locked file cabinet or office
- New documents should not normally be kept in a paper based system

Have a specific purpose, e.g. drawings from a particular vendor.

## 6.2 Controlled Document

Controlled documents must be under formal revision control and have an approval process for new releases and revisions. Controlled engineering documents must be stored in a content management system that supports these requirements, e.g., ICMS, Vault, PDMLink.

[Table 1](#) indicates which repositories support the above workflows.

**Table 1. Work Flows and Revision Tracking Capabilities per Repository Type**

<b>Repository</b>	<b>Staff-controlled / No Revision Tracking (Not a controlled document)</b>	<b>Staff-controlled / Revision Tracking (Not a controlled document)</b>	<b>Controlled Document (A formal change procedure including an approval workflow and Revision Tracking)</b>
Group-Shared File System (GSFS)	X		
Group-Shared File System Plus a Revision Control System (RCS)		X	
ICMS		X	X
Vault			X
PDMLink			X

## 6.3 The Engineering Document Portal and Index

Since several repositories are utilized for document management at APS, a mechanism must be provided to identify what documents exist and where they are located. For example, documents generated as part of a specific engineering task or project may reside

in several repositories, making it difficult to see the entire set of documents associated with that effort. The Engineering Document Portal (EDP) provides the capability to group engineering documents into sets that describe a particular module, component, task, or subsystem. These tools provide the equivalent of an electronic “Project Notebook” in which links to important documents are collected.

All engineering documents to be accessed via the portal must have at least one corresponding entry in the Engineering Document Portal (multiple collections can refer to the same document). The primary way of locating documents will be by searching for the desired document collection and viewing the individual entries for that collection.

A “Contributor,” usually the responsible staff person for the project or task, defines the document collection. The collection is given an intuitive name and also has assigned tags that are defined by the specific group. The EDP supports a hierarchical view of the collection so the contributor may organize the entries in folders and subfolders in an intuitive way (e.g., separate folders for schematics and mechanical drawings).

## 6.4 Responsibility for Document Validity

The contributor (staff person responsible for the documents) of any collection defined in the EDP is fully responsible for ensuring that each EDP entry is completely accurate and points to a valid (and viewable) document that is the intended document and revision.

## 7 Requirements for Document Repositories for Controlled Documents

A system requirements description shall be established for each APS-approved document repository that stores controlled documents to define the repository-specific controls to:

- approve documents;
- review and update as necessary and re-approve documents;
- ensure that changes and the current revision status of documents are identified;
- ensure that relevant versions of applicable documents are available at point of use;
- ensure that documents remain legible and readily identifiable; and
- prevent the unintended use of out-of-date documents and apply suitable identification to them if they are retained for any purpose.

(These controls are based on the ISO 9001 standard and Argonne document management requirements.)

System requirements descriptions shall be:

- In the form of the example given in [Appendix A](#).
- Managed by the APS Policy and Procedure administrators

- They must be approved by the relevant DD
- They will be maintained in the ICMS with the following metadata attributes:

Field	Value
Document type	Specification
Title	<system> Document Repository Requirements, e.g. ICMS Document Repository Requirements
Security Group	APS
Secure To	APSShare/PPAdmin
Comments/keywords	<system>, <division name, if appropriate>, e.g. Vault, AES

The AES Division Director will maintain descriptions for ICMS, the Oracle database, DCC, PDMLink, and Vault. Any group requesting a new Division-approved controlled document repository will provide this system description.

## 8 References - Source Requirements

Argonne [LMS-PROC-1, Implementation of Document Control Requirements](https://docs.anl.gov/lms/documents/browse/governance/LMS-PROC-1) (<https://docs.anl.gov/lms/documents/browse/governance/LMS-PROC-1>)

## 9 Corrections, Feedback, and Improvement

If you are using this procedure and have comments or suggested improvements for it, please go to the [APS Policies and Procedures Comment Form](#) \* to submit your input to a Procedure Administrator. If you are reviewing this procedure in workflow, your input must be entered in the comment box when you approve or reject the procedure.

Instructions for execution-time modifications to a policy/procedure can be found in the following document: Field Modification of APS Policy/Procedure ([APS 1408152](#)).

\* [http://centraldocs.aps.anl.gov/comment\\_form.php](http://centraldocs.aps.anl.gov/comment_form.php)

## Appendix A - APS Repositories for Controlled Documents

Sample repository control document for ICMS

Repository: **ICMS**

Date: 1 July 2011

Prepared by: Steve Davey

Approved by: W. G. Ruzicka

<b>1. Indexing</b>	Unique ID for each document automatically assigned on check-in and multiple field metadata
<b>2. Legible Format</b>	<ul style="list-style-type: none"> <li>- .pdf default</li> <li>- native files saved, refinery automatically converts native files to .pdfs.</li> </ul>
<b>3. Current Version</b>	Persistent URL available for most recent revision
<b>4. Identification of Out-of-date Versions</b>	The default URL is the persistent URL to the most recent version. Revisions available through version-specific: 1) URLs or 2) links available through the Content Information page for each document
<b>5. Update/Version Control</b>	Check-in and check-out with each revision being automatically saved
<b>6. Revision/Change Control</b>	<ul style="list-style-type: none"> <li>- read/ write permissions specified for each document</li> <li>- revision history captured</li> <li>- workflow available</li> <li>- revisions and revision history automatically saved and identified with a revision number when updated file is checked-in and released</li> </ul>
<b>7. Retention</b>	Manual (records management tool being deployed in 2012)
<b>8. Review &amp; Approval</b>	<ol style="list-style-type: none"> <li>1. If review is required, workflow approval is available</li> <li>2. If review not required, approved upon submission</li> </ol>

## Appendix B

### Sample 1 - APS Document File Plan for R&D Documents

Organization: <u>AES</u>							Date: <u>1 July 2011</u>	
Group: <u>User</u> <u>ESH Support</u>							Approved by: <u>Bruce</u> <u>Glagola</u>	
	Document Type	Repository	Author	Approval Control	Revision Control	Periodic Review	Access to Current, Approved Revision	Additional Document Controls*
1	Experiment Safety Assessment Form (ESAF)	Oracle database	Experiment spokesperson	Experiment Safety Review Board	Per User Policies and Procedures	Record, no periodic review	Oracle database generated	Indexed by PEN number Retain 75years
2	Experiment Authorization Form (EA)	ICMS	ESAF System	Experiment spokesperson and FC	Record, no revision	Record, no periodic review	Floor Coordinator scans signed copy for ICMS entry	Retain 75 years
3	Floor Coordinator shift log	Oracle database	On-shift FC	Upon entry by FC	Record, no revision	Record, no periodic review	Oracle database generated	
4	Configuration Control Work Permits (CCWP)	ICMS	Shielding Engineer	As identified on CCWP	Record, no revision	Record, no periodic review	Persistent URL in ICMS	Indexed by ICMS document number Retain 75 years
5	Floor Coordinator procedures	ICMS	As assigned by User Safety Officer	ICMS workflow with User Safety Officer Final Approval	ICMS, secured to FC	Bi-annual ICMS workflow	Persistent URL in ICMS	Managed with APS policies and procedures, per Managing APS Facility Procedures (APS document APS_1001409)

\*Document Control Requirements may include:

- Indexing scheme
- Format
- Access to current version
- Change control process
- Retention requirements
- Metadata requirements

## Sample 2 - APS Document File Plan for Administrative Documents

Organization: <u>APS</u>		Date: <u>1 July 2011</u>						
Group: <u>Safety Committee for Design Reviews</u>		Approved by: <u>Steve Davey</u>						
	Document Type	Repository	Author	Approval Control	Revision Control	Periodic Review	Access to Current, Approved Revision	Additional Document Controls*
1	Safety Committee for Design Reviews (SCDR) Committee Records	ICMS	SCDR Chair	ICMS workflow to SCDR members	ICMS workflow to SCDR members	Record, no periodic review	Persistent URL in ICMS	Indexed by ICMS document number  Retain 75 years

\*Document Control Requirements may include:

- Indexing scheme
- Format
- Access to current version
- Change control process
- Retention requirements
- Metadata requirements