

Advanced Photon Source

PROCEDURE	Page 1 of 8
Procedure #:	3.1.130
Revision #:	0
Issue Date:	3/20/13
Review Period:	2 years
Supersedes:	n/a
Last Reviewed:	3/20/13

Mechanical Engineering and Design (MED) Group Engineering Document Management Plan

Changes made in this revision:

- N/A (new revision)

Prepared by:

P. Den Hartog, AES/MED

Reviewed by:

AES/QAR

AES/ADD-MIS

Approved by:

AES/DD

APS_1436313

The current version of this procedure is accessible from <http://centraldocs.aps.anl.gov/>. Print or electronically downloaded copies may be obsolete. Before using such a copy for work direction, employees must verify that it is current by comparing its revision number to that shown in the online version.

PROCEDURE	Page 2 of 8
Procedure #:	3.1.130
Revision #:	0

Table of Contents

1	Introduction	3
1.1	Related Documents	3
2	Repository Use and Revision Tracking for Engineering Documents	3
3	Group-shared File Systems and Revision Control Systems (RCS)	6
4	Document/Drawing Requirements.....	6
5	Software Tools	6
6	Alias Project Naming Convention (if any)	6
7	Alias Drawing Naming/Numbering Convention (if any).....	6
8	Group-specific EDP Collection Browse Categories	7
9	Feedback and Improvement.....	7

Mechanical Engineering and Design (MED) Group Engineering Document Management Plan

1 Introduction

This document sets forth group-specific guidelines for management of engineering documents and drawings consistent with the Managing APS Documents Policy ([APS 1273342](#)). The MED Group is required to have such a policy in place to guide their staff in the details of controlling their engineering documents under this procedure. This procedure describes the allowable document storage locations and processes for engineering documents that must be accessed for use by the originator or others to maintain or modify components and systems that are part of the APS facility. Typical systems are beamline RSS components, accelerator components, and significant beamline equipment. It does not apply to WIP that may be stored on a local disk or to documents that are generated for one-off low value apparatus. Clearly, this is a gray line. The object is to store within a controlled engineering depository all documentation necessary for the continued efficient operation of the facility without over-burdening staff with requirements for documents that may not be complete or that may not require continued access. With that said, it may still be desirable to include a sketch or draft in the controlled repository to enable others to utilize the product of your work and innovation. APS-U documents will be stored in accordance with policies and procedures established by APS-U management.

1.1 Related Documents

- Managing APS Documents Policy ([APS 1273342](#))
- Managing APS Engineering Documents ([APS 1423689](#))
- APS Design and Drafting Drawing Standard ([APS 1429632](#))
- [Argonne Quality Assurance Program Plan](#)

2 Repository Use and Revision Tracking for Engineering Documents

[Table 1](#), which is copied from the Managing APS Documents policy ([APS 1273342](#)), maps the valid document repositories with the workflows that are supported by each repository.

Table 1: Work Flows and Revision Tracking Capability per Repository Type

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

AES/MED uses a graded approach matrix to determine the rigor to be applied to MED-generated documents. The rigor of required document control increases from white to red. Uncontrolled documents may be stored locally, but if a document will need to be used by others for their work or reference it should be stored on an approved repository. Cost limits are to be applied to entire sub-assemblies; not only to individual parts.

Cost	Impact	Effort	Safety	Innovation
Low < \$5000	Low	< 1 week	Low	Low
<\$5000-\$50,000	Medium	Week -month	Medium	Medium
<\$50,000-\$100,000	High	1-3 months	High	High
>\$100,000		3-6 months		
		>6 months		

The left column of [Table 2](#) lists the types of documents generated by the MED Group in its routine operation. The rest of the table gives guidance on which workflow and repository should be used for each type of document.

Advanced Photon Source

PROCEDURE

Page 5 of 8

Procedure #:

3.1.130

Revision #:

0

Table 2: Work File Repository Usage

Criteria	Staff-controlled/ No Revision Tracking	Staff-controlled/ Revision Tracking		Controlled Document			Drawing must meet D&D Standard (APS 1429632)
	Group-shared File System (GSFS)	GSFS+ RCS	ICMS	ICMS (with approval thread)	Vault	PDMLink	
SAFETY: RSS Critical Component or Personnel Safety Related				X	X	X	X
MISSION CRITICAL: Machine Protection or Critical for Operation				X	X	X	X
MED Project Document Grading Matrix:							
White	X	X					
Green				X	X	X	
Blue				X	X	X	
Red				X	X	X	X
EXTERNAL USE: Subject to External Review Planned Use at Other Facilities				X	X	X	X
Legacy drawings:	X						
Document/File Types							
AutoCAD (released)					X		X
Solidworks (released)					X		X
Pro/E (released)						X	X
AutoCad (unreleased)	X				X		
SolidWorks (unreleased)	X		X		X		
Pro/E (unreleased)						X	
MED Project Requirements			X				
MED Project Plans			X				
MED Project Specifications			X				
MED Project Schedules			X				
MED Project Status Reports			X				
MED Project Change Requests			X				
MED Engineering Reports			X				
MED Review Reports			X				
Calibration records			X				
Material certifications			X				X
QA records			X				X
Presentations	X		X				
Meeting Minutes	X		X				
DEFAULT			X		X		

APS_1436313

The current version of this procedure is accessible from <http://centraldocs.aps.anl.gov/>. Print or electronically downloaded copies may be obsolete. Before using such a copy for work direction, employees must verify that it is current by comparing its revision number to that shown in the online version.

3 Group-shared File Systems and Revision Control Systems (RCS)

Group-shared files systems for MED:

Path: /net/phoebus/asdctls

Type of RCS: None

Path: /net/oxygen/edp/aes_med

Type of RCS: none

Directory Structure Guidance:

/net/oxygen/edp/aes_med/<STAFF_NAME> (each staff member has a directory for their use)

4 Document/Drawing Requirements

Criteria	Drawing Requirements
All drawings released MED staff	EDN # or valid Alias must be on drawing Title Block as specified by APS_1436278
Safety-Related Systems Work For Others	Use Design & Drafting Standard for all drawings associated with these projects

5 Software Tools

Standardized software applications for certain engineering drawing requirements are listed in the table below.

Document/Drawing Type	Software Tools
FEA	ANSYS
3D Modeling	PTC Windchill
2D Layouts	AutoCAD

6 Alias Project Naming Convention (if any)

None

7 Alias Drawing Naming/Numbering Convention (if any)

None

8 Group-specific EDP Collection Browse Categories

The MED menu structure replicates the AES WBS structure to L3:

A1.02 R&D

- A1.02.01 Nanopositioning
- A1.02.02 High Heat Load
- A1.02.03 Optics

A1.04 Accelerator Systems

- A1.04.01 General Accelerator Systems Support
- A1.04.02 Linac
- A1.04.03 Positron Accumulator Ring (PAR)
- A1.04.04 Low Energy Transport Line (LET)
- A1.04.05 Synchrotron
- A1.04.06 High Energy Transport Line (HET)
- A1.04.07 Low Energy Undulator Test Line (LEUTL)
- A1.04.08 Storage Ring (SR)

A1.05 Experimental Systems

- A1.05.01 X-Rays Optics Fabr. & Characterization
- A1.05.03 Insertion Device Systems
- A1.05.04 Front Ends
 - S1 ID Front End
 - S1 BM Front End
 - Continue for each sector
- A1.05.05 Beamlines
 - S1-ID Beamline
 - S1- BM Beamline
 - Continue for each sector

APS Projects

- Externally Funded Projects
- SCB Projects

9 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.

Advanced Photon Source

PROCEDURE	Page 8 of 8
Procedure #:	3.1.130
Revision #:	0

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