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PROCEDURE	Page 1 of 13
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Work Planning and Control at the APS

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Prepared by:

AES Technical Support Services

Reviewed/Approved by:

Safety Manager, PSC
AES Division Director
XSD Division Director
ASD Division Director
Deputy ALD for Operations

Table of Contents

1	Introduction	3
2	Scope.....	3
3	Policy	4
4	Roles & Responsibilities	6
5	Summary of Work Planning & Control at the APS	8
6	Related Policies	10
7	Documents/Records Created by this Procedure.....	10
8	Feedback and Improvement.....	10
	Appendix A.....	11
	Appendix B.....	12

Work Planning and Control at the APS

1 Introduction

This policy describes APS work planning and control (WP&C) standards that:

1. Ensure a safe working environment, protecting everyone at the APS.
2. Ensure hazards associated with the work are mitigated or eliminated.
3. Identify clear roles and responsibilities of those involved in the planning and execution of the work.
4. Identify the impact of the work on the facility and the work force.
5. Support highly reliable facility operations.
6. Optimize the use of effort and other resources to support the mission of the APS.
7. Provide a consistent framework to develop new or improve existing work practices.

Consistent with DOE and Argonne requirements for Integrated Safety Management (see [Appendix A](#) for additional information), each WP&C process will contain the following elements:

1. Definition of the scope of work.
2. Identification and analysis of hazards associated with the work .
3. Plans that will mitigate or eliminate hazards. Plans will include the assignment of workers that have the knowledge, skills, and experience to safely complete the work and a briefing to workers, as appropriate to the task(s), on the scope of work and controls.
4. Approval and authorization requirements.
5. Requirements for closeout, feedback and lessons learned.

2 Scope

This policy describes the overall requirements for WP&C at the APS - implementation details are established in APS policies and procedures identified below.

This policy applies to:

- All technical and experimental work (i.e., other than office or other administrative work) done by APS employees and APS Users. For the purposes of this policy, Argonne Associates, paid for by the APS, are considered APS employees.
- Construction work done at the APS on behalf of APS employees and APS Users.
- Work done by APS employees not working at the APS. In general, the employee must meet the joint requirements of this APS policy and the host facility requirements.

This policy does not address resource allocation, scheduling, or other administrative project management activities.

PROCEDURE	Page 4 of 13
ICMS Content ID:	APS_1432773
DNS #:	APS-PPR-ADM-000-A022-000012
Revision #:	3

3 Policy

Work planning and control, as described here, is the method by which the APS implements Integrated Safety Management (ISM), meeting the worker safety and health requirements for hands-on work.

Every worker is responsible for helping to ensure that Argonne and the APS maintain a safe work environment.

Managers are responsible for overseeing the work of their reports and responsible for the protection of workers, the public, and the environment.

Stop Work

In every element of hands-on work (Argonne policy [LMS-POL-1](#)), all personnel **have both the authority and the responsibility to stop work** if there appears to be an imminent safety hazard or danger to the environment.

An individual, who exercises stop-work authority, must ensure other workers are notified and report their action to their Group Leader or more senior line manager. Once a stop work is called, workers may only secure the work environment; otherwise all personnel involved in the work **must comply with the stop work and halt all work**.

Workers may resume stopped work only when the responsible Group Leader, or more senior responsible line manager, has verified that the appropriate hazard controls are in place and the individual who stopped the work has had the opportunity to concur with the corrective action.

Suspend Work

Workers have the authority and responsibility to suspend work:

- If a deficiency or unsafe condition is found, provided that it does not pose an immediate danger to personnel or the environment.
- If any ambiguity exists in work authorization or work procedure.
- If a change is made to the approved scope of work.
- If an inconsistency found between the approved design, the physical installation, or other work documents

Workers may resume suspended work when the deficiency has been corrected or the ambiguity has been clarified.

PROCEDURE	Page 5 of 13
ICMS Content ID:	APS_1432773
DNS #:	APS-PPR-ADM-000-A022-000012
Revision #:	3

Unreviewed Safety Issues

The [APS Safety Assessment Document](#) (SAD) identifies anticipated hazards in APS activities. An Unreviewed Safety Issue (USI) exists if: 1) a significant safety consequence could result from an accident or a malfunction of equipment that is important to safety **and** 2) the hazards associated with the accident or malfunction have not been analyzed in the SAD.

APS policy [Unreviewed Safety Issue Determination](#) (USID) and the Argonne procedure [LMS-PROC-188](#) outline the process used to determine if a USI exists. Work is suspended or stopped for a USID and may only proceed after the USI question has been resolved by one of three outcomes: a USI Determination is not required; an outcome that a USI is not present; or an outcome that found a USI is present and is addressed per the Argonne procedure. If you think there is a possible USI or have a question about USIs, contact an ESH Coordinator for guidance.

Any work on radiation safety systems (RSS) must comply with the [Change Control for Radiation Safety Shielding](#) policy and procedure. In particular, a Configuration Control Work Permit (CCWP) is required for any RSS work.

The APS has established a specialized WP&C process tailored to experimental work (see the [APS Experiment Safety Reviews procedure](#)). Reviews and control plans are based on information collected using the [Experiment Safety Assessment Form](#) (ESAF), available as an online form. To ensure uniform standards for experiment controls, the ESAF is used for both beamline and laboratory-based experimental work anywhere at the APS including on the experiment hall floor, in the lab office modules, and in other APS labs. Set-up and testing are included as part of an experiment's scope.

No experiment will be allowed to run until 1) an ESAF has been approved and 2) an APS Floor Coordinator (FC) reviews/confirms experiment controls are in place with the on-site spokesperson and a FC-generated Experiment Authorization form (EA) has been signed-off by the on-site spokesperson and the form has been posted by a FC.

The APS also has established specialized WP&C processes tailored to Contractor and Construction Services, see the [Contractor and Construction Services](#) policy for details.

All other work is categorized as a Facility Technical Tasks:

- Work in this category will use the Argonne [WP&C software application](#) to identify hazards and controls and generation of a Work Control Document (WCD).
- For repeated tasks and routine work, a group may develop standard work procedures.
- Either a Standard Operation Procedure (SOP)-based WCD or a task-based WCD shall be generated by the group originating the work
- The Argonne WP&C hazard analysis tool will identify a level of rigor (as defined by the

Argonne WP&C software application). Approval and authorization are the responsibility of the person listed in the table below:

Rigor (as determined by Argonne WP&C hazard analysis)	Procedure approver	Who can authorize the work
Low	Group Leader	Supervisor or Group Leader
Medium	Group Leader	Group Leader
High	Division manager (DD, DDD, or ADD)	Division manager (DD, DDD, or ADD)

An overall summary of WP&C for the APS is provided in Section 5 of this procedure.

New facility installations (e.g., a new beamline) or engineering/facility changes that have the potential to significantly impact facility operations must be reviewed before the installation or change per the [APS Design Review](#) policy.

4 Roles & Responsibilities

Worker

- Performs the hands-on work.
- Ensures work is done in conformance with the approved controls.
- Stops or suspends work as needed.
- Notifies supervisor if work plans need to be corrected
- Identifies opportunities for improvement and brings them to the attention of their supervisor

Supervisor

- Accountable for the work and ensures tasks are completed per approved requests.
- Provides day-to-day oversight of the work and ensure the tasks are completed within defined controls.
- Knowledgeable of the full scope of work.
- Knowledgeable of the hazards and controls associated with the work.
- Ensures workers have the proper training to perform the tasks.
- Feedback point of contact (e.g., where one would go for a correction to work plan or controls or for improvement suggestions).

PROCEDURE	Page 7 of 13
ICMS Content ID:	APS_1432773
DNS #:	APS-PPR-ADM-000-A022-000012
Revision #:	3

Approver

- Person designated to formally approve work plan and controls.
- Approval does not imply that the work can be started; only that the plan is sound
- Sufficiently knowledgeable of the work to validate that the appropriate hazards have been identified and controls selected.

Authorizer

- Sufficiently knowledgeable of the work to confirm controls are in place and trained personnel have been scheduled to perform the work.
- Person designated to provide formal permission to initiate work.

Advanced Photon Source

PROCEDURE	Page 8 of 13
ICMS Content ID:	APS_1432773
DNS #:	APS-PPR-ADM-000-A022-000012
Revision #:	3

5 Summary of Work Planning & Control at the APS

Experimental Work, see [APS Experiment Safety Reviews](#) for additional information

1. Define Scope	2. Identify Hazards	3. Identify Controls	4. Approve	5. Authorize	6. Perform Work within Controls	7. Closeout	8. Feedback
The experiment Spokesperson completes the description sections of the experiment on an ESAF	Experiment Spokesperson identifies the hazard classes sections on an ESAF and submits the ESAF	Upon ESAF submittal, Hazard Control Plan (HCP) is automatically generated	Safety: 1) Beamline or APS Group designated approver and 2) APS Experiment Safety Review Board	Experiment Authorization (EA): 1) APS Floor Coordinator (FC) generates an EA form 2) FC confirms controls in place with experiment On-site Spokesperson (OSP) 3) OSP signs-off EA form 4) FC posts EA at work area	Experiment executed by persons identified on ESAF Beamline staff, Floor Coordinators, and APS ESH personnel provide oversight	FC removes EA and updates run log	End of Run form

Construction, see [Contractor and Construction Services](#) for additional information

1. Define Scope	2. Identify Hazards	3. Identify Controls	4. Approve	5. Authorize	6. Perform Work within Controls	7. Closeout	8. Feedback
Requestor submits requirements to APS Site Operations Group (ASO). ASO completes a Work Project Checklist (WPC)	ASO lists hazards on a Job Safety Analysis (JSA)	For each JSA hazard, the ASO identifies the mitigating controls on the JSA	Sign-offs required per the Work Project Checklist are obtained.	ASO and AES Division Director (or designee)	Per contracts and applicable JSA ASO provides oversight	ASO update facility records	Feedback to ASO

The current version of this procedure is accessible from <https://www.aps.anl.gov/Document-Central>. 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.

Advanced Photon Source

PROCEDURE	Page 9 of 13
ICMS Content ID:	APS_1432773
DNS #:	APS-PPR-ADM-000-A022-000012
Revision #:	3

Facility Technical Tasks, see [Work Request](#) guide and Argonne's [WP&C software application](#) for additional information

1. Define Scope	2. Identify Hazards	3. Identify Controls	4. Approve	5. Authorize	6. Perform Work within Controls	7. Closeout	8. Feedback
<p>Scope is captured clearly in the Scope Summary field of either a:</p> <ul style="list-style-type: none"> Standard Operating Procedure (SOP)-based Work Control Document (WCD) in the Argonne WP&C software application Task-based WCD in the Argonne WP&C software application 	<p>Requestor or cognizant individual identifies hazards and mitigating controls in the Argonne WP&C software application.</p>	<p>A hazard analysis with identification of controls is required for generation of a WCD.</p> <p>This hazard analysis outputs a level of rigor (Low, Medium, High) based on the ratings assigned to hazard consequence and complexity of the task</p> <p>Routine, common and frequently performed Low Rigor tasks can be part of a group summary WCD and hazard analysis (one that lists common Group tasks in one document)</p>	<p>Low Rigor WCD: Group Leader approval</p> <p>Medium Rigor WCD: Group Leader approval</p> <p>High Rigor WCD: Division Management (DD, ADD, or DDD)</p>	<p>Low Rigor: Supervisor through Work Request system, Pre-Job Brief software application, Toolbox Review or Plan of the Day/Week meeting.</p> <p>There may be instances where a Pre-Job Brief should be conducted for Low Rigor work. See Appendix B for criteria.</p> <p>Medium Rigor: Group Leader through documented Pre-Job Brief software application</p> <p>High Rigor: Division Director through documented Pre-Job Brief software application.</p> <p>Work should be authorized only for systems with approved designs.</p>	<p>Overseen by Supervisor(s)</p>	<p>Update facility records (e.g., file as-built drawings, update maintenance logs, and file closed permits – including CCWPs for work on shielding)</p>	<p>Feedback to procedure author, Supervisor, and/or Group Leader.</p> <p>Low Rigor: Post-Job Brief completed in Pre-Job Brief software application if Pre-Job Brief was documented.</p> <p>Medium and High Rigor: Post-Job Brief completed in Pre-Job Brief software application.</p>

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6 Related Policies

- [Local Work Planning & Control Implementing Procedures, LMS-PROC-200](#)
- [Introduction and Use of the APS Work Request System, APS_1302758](#)
- [APS Experiment Safety Reviews, APS_1187022](#)
- [Beamline ESH Programs, APS_1410274](#)
- [Managing APS Facility Procedures, APS_1001409](#)
- [Advanced Photon Source Conduct of Operations, APS_1180311](#)

7 Documents/Records Created by this Procedure

Description of Document/Record	Custodian	Storage Location and Medium	Retention Requirement
Group-level technical procedures	APS Procedure Administrators	DMS/ICMS	5 years
Completed Work Control Documents	Author	Argonne WP&C software application	5 years
Pre-Job Briefs and Post-Job Briefs	Author	APS software application	5 years
APS Work Requests	Author	APS Work Request System	5 years

8 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](#)).

* <https://www.aps.anl.gov/Document-Central/APS-Policies-and-Procedures-Comment-Form>

PROCEDURE	Page 11 of 13
ICMS Content ID:	APS_1432773
DNS #:	APS-PPR-ADM-000-A022-00012
Revision #:	3

Appendix A

Excerpt from the DOE Integrated Safety Management Policy (DOE P 450.4A CHG 1)

GUIDING PRINCIPLES OF INTEGRATED SAFETY MANAGEMENT

LINE MANAGEMENT RESPONSIBILITY FOR SAFETY. *Line management is directly responsible for the protection of the workers, the public, and the environment.*

CLEAR ROLES AND RESPONSIBILITIES. *Clear and unambiguous lines of authority and responsibility for ensuring safety are established and maintained at all organizational levels within the Department and its contractors.*

COMPETENCE COMMENSURATE WITH RESPONSIBILITIES. *Personnel possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities.*

BALANCED PRIORITIES. *Resources are effectively allocated to address safety, programmatic, and operational considerations. Protecting the workers, the public, and the environment is a priority whenever activities are planned and performed.*

IDENTIFICATION OF SAFETY STANDARDS AND REQUIREMENTS. *Before work is performed, the associated hazards are evaluated and an agreed-upon set of safety standards and requirements is established which, if properly implemented, will provide adequate assurance that the workers, the public, and the environment are protected from adverse consequences.*

HAZARD CONTROLS TAILORED TO WORK BEING PERFORMED. *Administrative and engineering controls to prevent and mitigate hazards are tailored to the work being performed and associated hazards.*

OPERATIONS AUTHORIZATION. *The conditions and requirements to be satisfied for operations to be initiated and conducted are clearly established and agreed upon.*

CORE FUNCTIONS FOR INTEGRATED SAFETY MANAGEMENT

These five core safety management functions provide the necessary structure for any work activity that could potentially affect the workers, the public, and the environment.

The functions are applied as a continuous cycle with the degree of rigor appropriate to address the type of work activity and the hazards involved.

DEFINE THE SCOPE OF WORK. *Missions are translated into work, expectations are set, tasks are identified and prioritized, and resources are allocated.*

ANALYZE THE HAZARDS. *Hazards associated with the work are identified, analyzed, and categorized.*

DEVELOP AND IMPLEMENT HAZARD CONTROLS. *Applicable standards and requirements are identified and agreed-upon, controls to prevent/mitigate hazards are identified, the safety envelope is established, and controls are implemented.*

PERFORM WORK WITHIN CONTROLS. *Readiness is confirmed and work is performed safely.*

PROVIDE FEEDBACK AND CONTINUOUS IMPROVEMENT. *Feedback information on the adequacy of controls is gathered; opportunities for improving the definition and planning of work are identified and implemented.*

Appendix B

Pre-Job Briefing and Post-Job Briefing Guidelines

Adapted from Hanford Mission Support Contract procedure MSC-PRO-14047, dated Apr 28, 2011.

Work at the APS, whether conducted per Work Control Documents (WCDs), technical procedure or other form of work instruction, is expected to begin with a Pre-Job Briefing for the purpose of exchanging essential information about the work between the assigned workers and task Supervisor/Work Leader.

The pre-job briefing process communicates to the workers the scope of the work, the hazards and requirements, and the controls such that work can be performed safely. Pre-Job Briefings are a key element of successful implementation of ISM principles at the activity level for performing work within controls.

The Post-Job Review process is a fundamental element of the ISM core function of feedback and continuous improvement at the activity level. The positive and negative outcomes experienced during work performance serve as the talking points that lead to continual improvement. Formal and informal feedback shall be used to verify safe work performance, identify needed corrections, and communicate opportunities to improve the planning and safe execution of the work process.

The minimum expectations are established below for formal and informal Pre- and Post-Job Briefings for work at the APS:

Definitions:

Formal Pre- or Post-Job Brief: Documented briefing per the APS [Pre-Job Brief software application](#)

Informal Pre- or Post-Job Brief: Individual or team discussion covering basic tenets of a Pre-Job Brief, not requiring documentation. **These typically take the form of a Plan of the Day, Plan of the Week, “Toolbox” or Work Status Review meetings.**

Process:

1. Review the approved procedure and/or Work Control Document to determine if a formal Pre-Job Brief is required based on these criteria below. A formal Pre-Job Brief is required when:
 - A Medium or High Rigor determination from the Argonne Work Control Document hazard analysis tool is made
 - Specified in the work instruction or reference procedure(s)
 - Requested by a member of the work team.
 - Required by a project, facility procedure or Work Control Document where the work activity will take place.
 - When the task is an initial attempt at a new task or infrequently performed.

PROCEDURE	Page 13 of 13
ICMS Content ID:	APS_1432773
DNS #:	APS-PPR-ADM-000-A022-000012
Revision #:	3

2. Furthermore, conducting a formal pre-job briefing should be considered, whenever:
 - A large work team is involved,
 - The job is complex,
 - Extensive communication will be required during the job,
 - Workers or supervisor have limited experience with the job or each other,
 - Timing is critical to success, or
 - The task, even though routinely performed, has the potential to
 - Adversely affect accelerator or beamline protection systems, equipment and/or operations, or
 - Function outside the approved safety envelope of operations or design (e.g., potential hazards have not been analyzed in the APS Safety Assessment Document (SAD)).
3. When a formal Pre-Job Brief is conducted, the Pre-Job Brief should be conducted and documented care of the [Pre-Job Brief software application](#).
4. When a formal Pre-Job Brief is conducted, the Post-Job Brief should be conducted and documented care of the [Pre-Job Brief software application](#).