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C-A OPERATIONS PROCEDURES MANUAL

2.28 C-A Procedure for Work Planning and Control for Operations

Text Pages 2 through 9

Attachments

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
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Approved: _____ *Signature on File* _____
 Collider-Accelerator Department Chairman Date

P. Cirnigliaro

2.28 C-A Procedure for Work Planning and Control for Operations

1. Purpose

- 1.1 This procedure provides C-A Work Control Coordinators with requirements for work control, and where needed, planning. This procedure documents supervisor and worker responsibilities and communications that exist at C-A for work control. The **Enhanced Work** planning, used for moderate and high rated jobs, applies to maintenance and construction and contractor activities at C-A, for which written procedures and/or hazard assessments do not exist. The purpose of this enhanced planning is to enhance work with written procedures, and /or with risk reviews, whenever they are deemed to be lacking. This procedure supplements C-A Department's commitment to safe operations. The C-A Safety Review Committees, and C-A OSH Management System Program, are integrated with the work control process to achieve this commitment.
- 1.2 This procedure documents existing work-controls at C-A. In fact, existing work control meetings will result in the vast majority of ESSHQ reviews well before work is performed (see [C-A-OPM-ATT 2.28.a.](#)). Generally, ESSHQ problems are identified early in their development through formal programs listed in Table 2 of [C-A-OPM-ATT 2.28.d.](#)
- 1.3 C-A work control is intended to capture the five core-functions from DOE's Integrated Safety Management System Guide, DOE P 450.4:
 - Core Function 1, Define Scope of Work
 - Core Function 2, Analyze Hazards
 - Core Function 3, Develop/Implement Controls
 - Core Function 4, Perform Work and Operation Authorization
 - Core Function 5, Feedback/ Improvement
- 1.4 Definitions:
 - 1.4.1 A work-control system is a system used by a C-A Work Control Coordinator to document the requirements of this procedure and BNL [SBMS Subject Area "Work Planning and Control for Experiments and Operations."](#)
 - 1.4.2 Work that involves the design, operation, maintenance, modification, construction, demolition, or decommissioning of facilities, systems, or equipment by BNL or non-BNL staff. The definition of work for this standard is for operations and does not include the work involved in planning, analyzing, and conducting experiments.

2. **Responsibilities**

- 2.1 Only qualified Work Control Coordinators shall implement this procedure.
- 2.2 The Work Control Coordinator is responsible for ensuring all C-A work controls listed in [C-A-OPM-ATT 2.28.d](#) and [SBMS “Work Planning and Control for Experiments and Operations.”](#) are applied, when appropriate.
- 2.3 The C-A Department Chairman shall delegate the responsibility of interacting with other Departments/Divisions at BNL, to the C-A Work Control Manager. In addition to responsibilities outlined in [SBMS “Work Planning and Control for Experiments and Operations.”](#) The Work Control Manager is responsible for:
 - 2.3.1 Ensuring this written work control procedure complies with [SBMS “Work Planning and Control for Experiments and Operations.”](#)
 - 2.3.2 Review Work Control Systems for Applicability to this procedure.
 - 2.3.3 Ensure that C-A personnel are trained in this procedure.
 - 2.3.4 Ensure the work controls process is periodically monitored.
 - 2.3.5 Promote consistency in work planning across the BNL site.
 - 2.3.6 Ensure that external work controls are implemented ([See C-A-OPM-1.11](#)), and that memoranda of understanding are established with each Department/Division sending workers to C-A.
 - 2.3.7 Ensure that work planning described herein shall be captured in the C-A Self-Assessment Program and included in the C-A Independent Assessment, [C-A-OPM 13.10.1](#), schedule.
- 2.4 The Work Control Coordinator's serve the key role of screening work request in their area or for their group, and to determine Environmental Safety Security and Health (ESSHQ) risk levels, complexity, and work coordination levels. Determinations are made when to use Enhanced Work Permits (EWP).
 - 2.4.1 The Work Control Coordinator’s responsibilities are outlined in [SBMS “Work Planning and Control for Experiments and Operations”](#), and in this document.

- 2.4.2 A Work Control Coordinator is allowed to screen their own work. The Work Control Coordinator may self approve Low Hazard work. Medium and High ES&H Risk, Complexity, or Coordination Level work must use Enhanced Work Planning (Enhanced Work Permit Form, EWP) and be reviewed and approved by the ESSHQ Division Head or designee.
- 2.4.3 Collider-Accelerator Support (CAS), Target Desk, or Main Control Room shall provide Work Planning for off -hour work. Work initiation shall commence following approval from the ESSHQ Division Head, or designee.
- 2.5 Workers are responsible to discuss each job with their Work Control Coordinator or Supervisor (Pre-job brief). Workers are to understand the hazards associated with the work and the controls that have been put in place to mitigate the hazards. On low hazard work the worker may perform the pre-job walk down.

Workers are to work within the established controls implemented in the work planning process. If work is not proceeding as planned, or new hazards are introduced or identified, re-evaluate the work and consult the Work Control Coordinator or Supervisor. If imminent danger exists, initiate stop work authority.

Workers shall always consider the following before starting work and while working:

- What are the hazards associated with the work, and are they properly controlled?
- What are the critical steps to complete the job safely?
- What is the worst thing that can go wrong?
- What errors could occur and what can be done to avoid them?
- Are conditions appropriate for work to proceed?
- What actions are taken if new hazards are identified?

3. Prerequisites

- 3.1 Work Control Coordinators shall meet the BNL training requirements. Work Control Coordinators shall be knowledgeable in C-A Department procedures and approved by the C-A Department Work Control Manager.

4. Precautions

None

Note: 1

If a written procedure, “Prescribed Work”, (e.g. standard operating procedures, operating/maintenance manual), is to be followed in order to perform work, then a EWP form is not required. Work is to be performed within established controls so that the levels of hazards, complexity, and coordination, have been reviewed, recognized, and mitigated to be considered low hazard work. For example, work on and post-job testing, of a power supply that is part of the access controls system, is covered by existing procedure. “Covered by procedure” (CP) may be recorded in a work control system for these types of jobs.

Note: 2

Enhanced Work Planning and Work Control are two different aspects of work. All work must be reviewed by the work control coordinator for risk level, complexity level, and work coordination. If the work is deemed low on all three levels, this review may be documented by the Work Control Coordinator. Moderate and High ES&H Risk, Complexity, or Coordination Level work requires a Enhanced Work Planning (EWP Form).

5. Procedure

- 5.1 All work initiated by the Work Control Coordinator shall be reviewed. Low hazard work shall be documented in work control system, as appropriate.
- 5.1.1 The design of the Work Control Coordinator’s work-control system is at their discretion, e.g. Detailed work schedules, spreadsheets, or in a software program.
- 5.1.2 The Work Control Coordinator shall have the work control system reviewed by the C-A Work Control Manager.
- 5.1.3 The work control system used by the Work Control coordinators shall consider incorporating the following elements:
- Work number to tie the work to the [EWP form](#), when the EWP is required.
 - Date
 - Location
 - Work Description
 - EWP column with definitions
 - Work Control Coordinator’s name or initials
 - ESH Permits required for the job
 - Important work contacts
 - Special instructions for waste streams, if applicable
 - Inspection column with definitions

Note: 1

An example log sheet work-control system is illustrated in [C-A-OPM-ATT 2.28.f](#), "Example Work Control System."

Note: 2

Inspections shall be required when there is a potential to cause major damage or program delay at the startup of a new or modified accelerator system.

5.2 Work initiation commences after internal meetings where work assignments are normally given. Examples of C-A Department internal meetings are illustrated in [C-A-OPM-ATT 2.28.a](#).

5.2.1 Coordination, priority and scheduling of work, are to be communicated by Work Control Coordinator's at C-A Department weekly meetings.

Note:

Guidance on determining Low, Medium, and High ES&H Risk, Complexity, or Coordination Levels is available to Work Control Coordinators in [C-A-OPM-ATT 2.28.d](#), [Table 1](#) and [Table 2](#) and from [SBMS "Work Planning and Control for Experiments and Operations."](#) This information is provided as an aid in evaluation of hazard levels of work prior to the application of the Enhanced Work Planning Form.

5.3 Prior to assigning work, Work Control Coordinator's shall evaluate each job using the criteria in [C-A-OPM-ATT 2.28.d](#) and [SBMS "Work Planning and Control for Experiments and Operations."](#)

5.4 Work Control Coordinators shall assign appropriately trained personnel to the job. Group Supervisors are experienced in recognizing the abilities and skill levels of their personnel and are to be consulted. Personnel are assigned Job Training Assessments (JTA's) by the C-A Training Office, in consultation with the individuals Supervisor. These JTA assignments are found on the Brookhaven Training Management System (BTMS), and aids the Work Control Coordinator and the Supervisor in determining the skill level and qualifications of the personnel.

5.5 The Work Control Coordinator shall conduct pre-job briefings with workers for all work reviewed and approved by them. The pre-job brief may be designated to knowledgeable and competent personnel. Pre-job walk downs are required for all work. Pre-job walk downs may be performed by the workers for low hazard work.

5.6 If the work is low rated, (ES&H Risk, Complexity, or Coordination Levels are low), then the Work Control Coordinator is authorized to approve the work as Low Hazard "Worker Planned Work".

5.7 For work that is determined to be Moderate or High Hazard, (ES&H Risk,

Complexity, or Coordination levels are moderate or high) the work planner shall complete the EWP form, and present the form to the C-A ESSHQ Division Head, or designee(s), for signature. The C-A ESSHQ Division Head, or designee(s), acting as primary reviewer, shall assign an Enhanced Work Permit Number to the EWP. The primary reviewer shall review the job for applicable environmental concerns and waste minimization opportunities. The primary reviewer shall determine if the EWP requires additional review by the C-A Environmental Compliance Representative, and or the Waste Management Coordinator. The primary review shall designate a walk-down team or individual as appropriate for the task and hazard rating using a graded approach.

5.8 Prior to signing the EWP form: a primary reviewer shall review the job at hand against the relevant [Job Risk Assessment](#) to ensure that all hazards are identified and all appropriate controls are in place; and the primary reviewer shall determine if additional reviews are required.

5.8.1 When required, additional reviews shall be performed by the primary reviewer or via existing C-A ESSHQ review programs, for example:

- Experimental Safety Committee Review ([OPM 9.2.1](#))
- Radiation Safety Committee Review ([OPM 9.1.1](#))
- Accelerator Safety Committee Review ([OPM 9.3.1](#))
- Safety Inspection Committee Review ([OPM 9.4.1](#))
- ALARA Job Review ([OPM 9.5.5](#))
- Chief Engineer Certification ([OPM 9.2.3](#))
- BNL Department/Division Requirements for Interaction with C-A ([OPM 1.11](#)) Training For Contractor Employees Overseen by the C-A Department ([OPM 1.12](#))
- Job planning for excavation work shall include the investigation, as appropriate, of the potential for soil/pavement contamination (radioactive or chemicals), the potential for uncovering buried munitions, damage to utilities, and impacts to endangered species habitats by contacting Environmental Restoration Division (ERD), or Environmental Services Division (ESD), or the C-A Department Environmental Compliance Representative (ECR).

5.8.2 The primary reviewer shall notify any Committee Chair or Chief Engineer affected by a decision for enhanced work planning.

5.9 Once the primary reviewer has signed the Enhanced Work Permit form (EWP), the form shall be logged into the Enhanced Work Planning Log. This log, at a minimum, shall contain the EWP number, date, and a brief description of the work.

5.10 The completed original EWP, or copy, shall be maintained by the ESSHQ Division Head, or designee.

5.11 If the work is designated High Hazard, (ES&H Risk, Complexity, or Coordination

level is high), then the Work Control Coordinator shall require a procedure or checklist to be written.

5.11.1 The procedure or checklist shall be approved by the Work Control Coordinator and the C-A ESSHQ Division Head, or designee(s), prior to assigning the work.

5.12 While work is under way, changes to the work may require the Work Control Coordinator to re-review the job against the criteria in [SBMS “Work Planning and Control for Experiments and Operations.”](#) and [C-A-OPM-ATT 2.28.d](#).

5.13 If there is a failure of established C-A policy, procedures, or program, for a job addressed by Enhanced Work Planning, or when a Stop Work Order is issued for the work, the ESSHQ Division Head shall implement the requirements of [BNL SBMS “Non-Conformance and Corrective and Preventive Action”](#)

5.14 Worker feedback regarding the work planning on a specific job shall be captured on the [EWP Form](#) or other documentation.

5.14.1 Completed C-A Enhanced Work Planning Forms (EWP) with employee feedback are to be maintained by the Work Control Manager.

5.14.2 Copies of completed forms are to be forwarded to C-A ESSHQ Division Head, or designee, for review.

5.14.3 Management encourages feedback. There shall be no reprisals to anyone completing the feedback form.

5.15 The Work Control Coordinator shall determine whether a post work review is necessary by the ESH Coordinator, or by other subject matter experts. Criteria for determining if post work review is required includes, but is not limited to:

- The work deviated from the Enhanced Work Planning,
- Exposure to hazards/hazardous materials exceeded expectations,
- Lessons learned would be beneficial from review,
- Required on a Radiation Work Permit.

5.15.1 The C-A ESSHQ Division Head, or designee, will maintain post-work reviews.

6. Documentation

6.1 All sections of the [EWP form](#) shall contain an appropriate degree of information.

6.2 The C-A ESSHQ Division Head, or designee(s), shall maintain all EWP forms that are designated Moderate or High.

- 6.3 The Work Control Coordinator shall maintain any procedures or checklists that resulted from the enhanced work planning process.
- 6.4 C-A Enhanced Work Planning Permits (EWP), and associated records, shall be kept for an indefinite period.

7. References

- 7.1 [BNL SBMS “Work Planning and Control for Experiments and Operations.”](#)
- 7.2 [BNL SBMS “Non-Conformance and Corrective and Preventive Action”.](#)
- 7.3 [BNL SBMS “OHSAS 18001 Interim Procedures Subject Area”.](#)
- 7.4 [C-A-OPM 1.10.4 “OSH Management System Program Description”.](#)
- 7.5 [C-A-OPM 1.11, “BNL Departments and Outside Provider Requirements for Interaction with C-A”.](#)
- 7.6 [C-A-OPM 1.12, “Training and Qualification Plan”.](#)
- 7.7 [C-A-OPM 9.1.1, “Procedure for Obtaining Review by C-A Radiation Safety Committee”.](#)
- 7.8 [C-A-OPM 9.2.1, “Procedure for Reviewing Environmental Health and Safety Aspects of an Experiment”.](#)
- 7.9 [C-A-OPM 9.2.3, “Procedure for Chief Engineers to Certify the Conformance of Devices”.](#)
- 7.10 [C-A-OPM 9.3.1, “Procedure for Reviewing Conventional Safety Aspects of a C-A System”.](#)
- 7.11 [C-A-OPM 9.4.1, Procedure for Conducting Safety Inspections”.](#)
- 7.12 [C-A-OPM 9.5.5, “ALARA Job Review”.](#)
- 7.13 [C-A-OPM 13.10.1, “Independent Assessment”.](#)

8. Attachments

- 8.1 [C-A-OPM-ATT-2.28.a, “Weekly Meeting Diagrams”.](#)
- 8.2 [C-A-OPM-ATT-2.28.d, “C-A Work Screening Guide”.](#)
- 8.3 [C-A OPM ATT-2.28.f, "Example Work-Control System".](#)
- 8.4 [C-A OPM ATT-2.28.g, “Enhanced Work Planning Log.”](#)
- 8.5 [C-A-OPM-ATT 2.28.h, “Screening Guide Card for Work Planning”.](#)
- 8.6 [C-A-OPM-ATT 2.28.i, “Conducting Effective Pre-Job Briefings, Walk-Downs, and Post-Job Previews.”](#)
- 8.7 [C-A-OPM-ATT 2.28.j, “Human Performance Tools for C-AD Staff.”](#)
- 8.8 [C-A-OPM-ATT 2.28.k, “Work Plan Signoff Sheet.”](#)