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Understanding the Importance of Hold Points

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Common contributors to hold point performance errors are

1. Applicability of the hold point to the work is not adequately defined or understood,
2. The hold point trigger(s) are not adequately defined or understood, and
3. The actions that must be completed/conditions that must exist in order to release the hold are not adequately defined or understood.

Discussion: LLNL experienced recent events in which written instructions for performing radiological work were not followed. In each event, the work document contained hold points intended to limit activities in response to discovered radiological conditions.

In one event, a health safety technologist found fume hood contamination above the 10,000 counts per minute alpha that triggered a hold point and notifications. The health physicist confirmed the levels, marked the opening with barrier tape, and both personnel reported the condition to program management. The health safety technologist, the responsible individual, and the authorizing individual/program manager evaluated the fume hood and discussed the potential risk of leaving the contaminant over the weekend.

Concerned that it could migrate out of the fume hood, the responsible individual proposed applying a decontamination gel to temporarily fix the contaminant in place. Nobody discussed whether this action was allowed by or consistent with any work document because it was mistakenly assumed that this aggressive technique was a decontamination action allowed by the procedure used to perform work inside the fume hood. The gel was applied and it was later determined that this action possibly dispersed the contaminant to the floor and, as a result, outside this laboratory (shoe monitoring was not a requirement for exiting this lab).

In a second event, a light fixture inside a glovebox needed to be realigned. A health physicist, health safety technologists, and several material handlers developed the work permit. All were familiar with the expected radiological conditions because similar work had been performed recently. Hold point values were determined and placed in the work permit. That afternoon, the workers, health safety technologists and health physicist involved in the work permit development attended a pre-job briefing that discussed the hold points, their values, and the responses to them (stop work and contact the health physicist). The work was conducted within an hour or so of the pre-job briefing, and the health safety technologists survey data indicated that a hold point value was exceeded. However, the participating personnel failed to remember the stated hold point values. After the work was done, the senior material handlers visited the health physicist and mentioned the contamination levels discovered during the work. The health physicist reminded them of the specified hold point values, and a causal analysis was initiated.

Analysis: A hold point is used to initiate a pause in work activities to obtain additional necessary information and/or approvals prior to proceeding. Holds may be used to validate pre-planning expectations, revise hazard assessments, or modify work control documents covering the work.

For the first event, personnel assumed that when the Responsible Individual, health safety technologist and Authorizing Individual/program manager participated in the discussion evaluating the fume hood, the discussion included all of the personnel needed to authorize release of the hold point. The decontamination gel was applied as a result of this and the absence of any voiced objections to its use. The improper decontamination and the resulting spread of contamination led to a review and corrective actions which impacted operations for weeks.

For the second event, the investigation revealed that the intent of the hold point was clear and properly understood by the individuals involved. However, the hold point trigger value was not remembered when needed and the work was completed without interruption. The event resulted in a work delay on this project.

Recommended Actions: -When writing work control documents, ensure that hold points are clearly stated and understandable.

-When conducting work, ensure that you understand the hold points, authorizations and limitations in work control documents and comply with them.

-Prior to starting the work, establish clear protocols for authorizing the resumption of work after reaching a hold point and following an upset condition, including

- o Specifics that constitute approval/concurrence for resumption of work,
- o Communication of the authorizations, limitations, and qualifications for the resumption of work, and
- o Criteria that must be met for releasing a hold and returning to normal operating conditions.

-If a hold point is triggered and resumption protocols specific to that situation or condition are not clear or provided, pause/stop work so the necessary work resumption protocols and plans can be implemented.

Savings: None.**Keywords:** CONTAMINATION, FUME HOOD, glovebox, hold point, HOOD.**Hazard(s):** Approvals & Reporting, Barriers & Delay Mechanisms, Facilities & Equipment, Management Control, Personal Injury / Exposure - Radiation / Contamination**ISM Code(s):** Develop / Implement Controls**Work Function(s):** Conduct of Operations - Procedure Adherence, Conduct of Operations - Work Control, Conduct of Operations - Work Planning, Human Factors, Management, Occupational Safety & Health - General**References:** NA-LSO-LLNL-2014-0031**Priority Descriptor:** Yellow / Caution**Attachments:**

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