

No: Y73-045

Title: Automated Job Hazard Analysis

Rev. Date: 02/10/04

This procedure describes the application of the Automated Job Hazard Analysis (AJHA) system at the Y- 12 National Security Complex.

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**BWXT Y-12
Management Requirements**

BWXT Y-12
Procedure

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Effective Date

Concurrence:

This document has completed the management requirements process.

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Requirements Management

This document has been reviewed by an Authorized Derivative Classifier and UCNI Reviewing Official and has been determined to be UNCLASSIFIED and contains no UCNI. This review does not constitute clearance for public release.

P. A. Porter /s/ 2/24/04
Signature and Date

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REVISION LOG
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Revision Date	Description of Change	Pages Affected
02/10/04	<p>DM/R 03-ESH-46 Revise instruction to reflect full implementation status and to incorporate changes in the system and its use as a result of plant suggestions.</p> <p>Added references to usage of Alternate Hazard Analysis processes.</p> <p>Added new hazard screening form usage.</p> <p>Added requirement to use specific controls.</p> <p>Added field condition verification requirements. Added AJHA field modification requirements.</p> <p>Added AJHA working group duties.</p> <p>Supersedes Y73-045INS and new formatting throughout document.</p>	<p>All</p> <p>5</p> <p>5,7</p> <p>7</p> <p>10</p> <p>11</p> <p>12</p> <p>All</p>
9/10/02	<p>DM/R 02-ESH-19</p> <p>Address questions related to the interface between this document, other management requirements, and work planning documents. Also inserted final job grading into instruction.</p>	All
08/08/02	<p>DM/R 02-ESH-17</p> <p>Non-Intent Change to correct typographical errors on cover sheet, and revision log. This instruction will not supercede Y15-012 and Y73-043 until implementation is completed in accordance with the Strategy.</p>	All
05/15/02	On Record	

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PURPOSE

This procedure describes the application of the Automated Job Hazard Analysis (AJHA) system at the Y-12 National Security Complex. It is based upon the premise that a determination has been made, using the appropriate work control procedure for the type of work being performed, as described in Y15-635PD, *BWXT Y-12 Integrated Safety Management System*, that a hazard analysis must be performed.

The methods of accomplishing work at BWXT Y-12 according to Y15-635PD are:

- Operational Work
- Maintenance Work
- Project Work (including demolition)
- Construction Work (direct hire or subcontracted)
- Subcontract Work

The AJHA system incorporates the Integrated Safety Management System (ISMS) and enables the user to prepare a comprehensive hazard analysis by utilizing the five core functions of ISMS. The five core functions of ISMS are:

1. Define the scope of work.
2. Analyze the hazards.
3. Develop and implement controls.
4. Perform work/operations within the controls.
5. Provide feedback and continuous improvement.

The responsibilities for adequately defining the work scope and accomplishing an effective AJHA rest with the individual or organization requesting the work with support and involvement by the performers of the work and other technical disciplines.

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APPLIES TO

This procedure establishes the AJHA system at BWXT Y-12 and describes the roles and responsibilities for those using the AJHA system. The AJHA system is fully implemented and replaces other methods of job hazard analysis. Job hazard analyses performed before March 31, 2003, using one of the previous systems, such as Y15-012 and Y73-043, are still valid until they expire.

This procedure provides the necessary information for BWXT Y-12 employees to use the AJHA system in conjunction with the [AJHA system user's manual](#). **This instruction is not intended to be a step-by-step instruction for the use of the AJHA system.** Consult the AJHA user's manual for step-by-step instruction.

Write access to the AJHA system is limited to those who have completed the AJHA training class. Consult your Training Coordinator if you need to be registered for a class. In the event that the AJHA server is not available to perform the analysis, a field checklist, the entire question set, and a blank AJHA form are available for use at the AJHA home page until the system is back on line. The initiator shall enter the information gathered into the system.

An alternate hazard identification and control process for highly hazardous non-routine work may be used to ensure unique hazards have been identified provided that one of the methods found in "Guidelines for Hazard Evaluation Procedures," Center for Chemical Process Safety, is used for hazard evaluation. The Environment, Safety and Health (ES&H) Division Manager, or his designee, shall approve the method for use. BWXT Y-12 organizations are available that can provide this analysis or additional assistance if needed. The hazard evaluation leader shall have documented training in the evaluation method being used. The line supervisor/manager is responsible to document the process and approval method, ensure the work is appropriately reviewed, and describe the implementation and communication of controls to the workers. Alternate methods of hazard identification will not be used for routine tasks or maintenance activities.

This procedure establishes the minimum requirements for integrating ES&H information into the work planning process at all levels to accomplish BWXT Y-12 missions while protecting the public, workers, and the environment. The documents listed below are the work control procedures referred to in the body of the procedure.

OTHER DOCUMENTS NEEDED

- [AJHA system users manual](#)
- Y14-001, *Conduct of Operations Manual*
- Y15-202, *Technical Procedure Process Manual*
- Y15-635PD, *BWXT Y-12 Integrated Safety Management System*

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OTHER DOCUMENTS NEEDED (cont.)

- Y15-636, *Integrated Safety Management Program*
- Y17-013, *Planning and Preparing for Demolition Work*
- Y17-64-301, *Construction Work Planning*
- Y17-64-302, *Execution of Direct Hire Work*
- Y17-64-401INS, *Construction Subcontract Management*
- Y18-007, *Maintenance Job Planning and Execution*
- Y73-116INS, *Personal Protective Equipment Program*
- Y73-164INS, *Subcontract Environmental Safety and Health Management Instruction*
- *Hazard Evaluation Procedures, Center for Chemical Process Safety, ISBN 0-8169-0491*

WHAT TO DO**A. Defining the Scope of Work**

NOTE: The minimum requirements of properly scoping the work are defined in the appropriate work control procedure.

AJHA Initiator

1. Define the scope of the work in accordance with Y15-635PD, *BWXT Y-12 Integrated Safety Management System*, and the initiating/planning organization's work control requirements to a level of detail adequate to facilitate identification and analysis of health and safety hazards and/or compliance issues and to establish job boundaries and customer requirements.

NOTE: The AJHA Team is comprised of personnel as noted in Section C of this procedure.

AJHA Team (if needed) 2. Ensure the work is properly scoped to facilitate a complete AJHA.

B. Hazard Screening

NOTE: Caution should be used to ensure that classified information is not entered into the unclassified AJHA system. A separate, identical AJHA system is located on a classified server. Consult your Authorized Derivative Classifier **BEFORE** entering information into the system if there is any question about the information.

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B. Hazard Screening (cont.)

AJHA Initiator

1. If applicable, according to the work control procedure being used, complete the hazard screening form found on the AJHA home page. Hazard screening determines the need for further analysis.

If ANY questions on the screening form are answered “yes,” an AJHA is required for the job. If all questions are answered “no,” an AJHA is not required. Unique facility related hazards shall be captured on the screening form.

NOTE: The Facility Safety Engineering Manager or the Senior Developmental Chemist in Industrial Hygiene can provide assistance in determining whether application of an alternate hazard evaluation method is appropriate.

AJHA Initiator/ Operations Manager/ Building Manager

2. If the work involves significant uncertainties in the work process, unusual or non-standard hazards, infrequently performed activities, hazards that present a high risk (potential for fatality, serious injury, or significant radiological or chemical exposure or high probability of occurrence), scale-up of an existing process or activity, or activities for which performance experience no longer exists, then determine whether an alternate hazard evaluation method for evaluating the activity should be applied in accordance with the “applies to” section of this procedure.

C. Analyzing the Hazards

AJHA Initiator

1. Determine the need to form an AJHA Team using the appropriate work control procedure for the job.

If using hazard screening, a “yes” answer to any question will require the formation of an AJHA Team. If all questions are answered “no,” further analysis using the AJHA system is not required; however, the Initiator may use the system for hazard identification and analysis. Refer to the appropriate work control procedure for more information.

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C. Analyzing the Hazards (cont.)

NOTE: According to the work procedure being used, the responsibilities of the AJHA Initiator may be transferred to the organization performing the work. Refer to the appropriate work control procedure and the users manual for information regarding this transfer.

AJHA Initiator

2. Answer as many of the first-level hazard questions as possible by using the information located on the screen. This screen contains additional details to explain the question, links to areas that contain the Material Safety Data Sheets (MSDS) and chemical inventories, and a link to other AJHAs for reference. These questions will also help the Initiator with the formation of the AJHA Team.
3. Form the AJHA Team based upon the questions that were answered in step 2. The AJHA Team will be comprised of the following:
 - Appropriate ES&H personnel as indicated by the AJHA system
 - Knowledgeable worker
 - Operations or systems expert

The following personnel are included as needed:

- Equipment or system owner (required on SSC graded 1 & 2 equipment)
- Operational Safety Board (OSB) member (as required by the OSB charter)
- Maintenance supervisor or planner (when using Maintenance Job Request)
- Construction
- Infrastructure Reduction
- Engineering
- Emergency Services
- Facility/Building representative

AJHA Initiator Designee

4. Schedule walkthroughs and meetings for the selected AJHA Team **or** using the MS Outlook calendar scheduling feature or other BWXT Y-12 approved scheduling method.

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C. Analyzing the Hazards (cont.)

AJHA Initiator or Designee

5. Participate as team leader for the AJHA Team during walkthrough, hazard identification and analysis, and AJHA entry. A “field checklist” is available in the “AJHA toolkit” for the walkthrough.

AJHA Team

6. Participate, as needed, with AJHA Team leader or designee during walkthroughs, hazard identification and analysis, and working with the AJHA system to assure hazards have been identified and analyzed.
7. Ensure that physical conditions and facility-related hazards are observed, identified and addressed during the walkthrough.
8. Review the hazard questions on the AJHA system that were identified during the walkthrough or tabletop exercise of the job to ensure that all questions within your cognizant discipline have been properly addressed.
9. Ensure a review of the Lessons Learned Database is performed as appropriate.
10. Review relevant technical information such as the following:
 - MSDS
 - Drawings
 - Schematics
 - Sketches
 - Operating procedures
 - Authorization Basis documents
 - Historical characterization data
 - Hazard Evaluation Reports
 - Other sources of technical information (i.e., books, periodicals, Web databases, etc.)

Some of this information is available from the AJHA system main screen.

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D. Development and Implementation of Controls

NOTE: The system contains preloaded recommended controls and prompts to help determine the appropriate course of action for specific hazards. **Generic controls that prompt the user to contact a particular subject matter expert (SME) or refer to a manual are not sufficient controls.** A specific control for the hazard encountered must be cited.

AJHA Team

1. Select an appropriate control for each hazard identified or enter a custom hazard and/or control into the AJHA system, if needed, to ensure all hazards identified during the walkthrough are mitigated.
2. Identify the required permits to accomplish the job.
3. Review the established controls (including the required work permits) to ensure they do not conflict or create additional hazards. Completing the Personal Protective Equipment Summary Form (UNC-20860) when PPE conflicts are identified during this phase of AJHA development will assist in fulfilling this requirement.
4. Ensure the development of the individual task steps and associate them with the appropriate hazard, if required for the specific job.

E. AJHA Approval

NOTE: Final approval of the AJHA is performed by all parties involved in the completion of the AJHA regardless of who performed the function of the Initiator.

AJHA Team

1. Ensure AJHA is complete, and approve the document for use before the final AJHA can be printed. The AJHA Initiator may approve for those without a user identification and password, with the approval of the individual. The Initiator may also approve for other team members with their approvals.

OSB

2. Review and approve AJHAs submitted to the OSB in accordance with Y15-636, *Integrated Safety Management Program*, or individual OSB charter.

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E. AJHA Approval (cont.)

AJHA Initiator

3. Press the “click to give final approval” button once all team members and OSB (if needed) have approved to complete the approval process and obtain an “approved for use” document.

F. Performance of Work/Operations Within the Controls

NOTE: Field modifications (pen & ink) of approved AJHAs require the approval of the Job Supervisor, the person providing work start approval, and the appropriate SME for the discovery and documentation of minor hazards or conditions.

Job Supervisor/ Planner/AJHA Initiator/ Operations/ Facility Manager

1. Authorize and approve the work after verifying field conditions, the job package and ensuring the appropriate controls are in place as indicated in the AJHA according to the appropriate work control procedure. This verification should occur as near to the commencement of the job as practical.
2. Enter any field modifications into the AJHA system using the “perform work” button on the main screen.
3. Document, if necessary, the methods used to ensure workers understand the hazards and controls of the job by using the “controls implementation strategy” feature.

Facility/Building Representative

4. Ensure facility-related hazards and controls are identified and included in the AJHA or job package and are communicated to workers via tool box meetings, pre-job briefings, work start approval, or other acceptable method per Y14-001, *Conduct of Operations Manual*, before authorizing work to begin.

Workers

5. Perform the job in accordance with the job package, procedure, or appropriate work plan and AJHA within control limits and in accordance with the appropriate work control procedure for the work being performed.

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F. Performance of Work/Operations Within the Controls (cont.)

Workers

6. Ensure facility related hazards are communicated and understood before beginning work.
7. Ensure that the required controls are in place before beginning work.

G. Feedback and Continuous Improvement

Workers and Supervisors

1. Immediately report any unplanned event, condition or circumstance that occurs during the job.
2. Provide feedback, if applicable, to the AJHA system by logging on the system or by using one of the MSDS/AJHA feedback workstations located throughout the complex.

AJHA Administrator/ Program Lead

3. Review feedback of work on a regular basis to identify trends, conditions, or improvement ideas that could lead to overall programmatic or job performance improvements.
4. Review recommendations for question changes or AJHA program changes at least quarterly.

Job Supervisor/ Planner/ AJHA Initiator/ Operations/ Facility Manager

5. Ensure any field modifications made to the job package are updated in the AJHA system to reflect the most current information possible by entering text in the “perform work” section of the AJHA system.

Job Supervisor

6. Review feedback provided on jobs in your purview and make necessary changes for job performance improvement.

AJHA Working Group

7. Meets quarterly (at a minimum) to discuss and resolve identified problems and concerns including recommended system changes.

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RECORDS

The official record copy of an AJHA is maintained on the AJHA system. Other documents and records associated with the AJHA development process (e.g., AJHA Hazard Screening Question forms) shall be maintained according to the work control procedure being used to accomplish work.

Records generated as a result of this procedure are maintained in accordance with BWXT Y-12 records management practices and established retention and disposition schedules.

**SOURCE
DOCUMENTS**

- BWXT Y-12 Standards/Requirements Identification Document, Requirement Units: 10452, 10448, 11232.

APPENDIX

A. Definitions

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APPENDIX A
Definitions
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AJHA Administrator/Program Lead – Person with the authority to make changes to the AJHA computer program and/or management requirement. This person is responsible for monitoring the program and feedback area for recommended improvements and changes to the AJHA system.

AJHA Initiator – The requestor of work or designated representative with specific knowledge of the job work scope, the facility, and associated hazards. The initiator must be authorized by management to enter and complete the AJHA and must have completed AJHA training. This individual is typically the responsible manager or owner of the equipment/system for which work is being requested.

AJHA Team – Selected members from ES&H; operations; Facilities, Infrastructure, and Services; knowledgeable representative task workers, OSB members, etc., necessary to properly scope, analyze hazards, and develop appropriate controls for a given job. They are selected based upon their subject matter expertise of the operation or cognizant discipline with the approval of line management.

Hazard Screening – Hazard screening is accomplished by completing the checklist located on the AJHA home page. This tool is used to determine if further evaluation of a job or task is required using the AJHA system.

Job Supervisor – Person with the duties and responsibilities to provide accountability for the actions of the personnel performing the job tasks.

Operational Safety Board – A multi-discipline team chartered for a specific organization, facility, or system to provide technical and safety direction, guidance, and oversight support to the line manager or system owner for the safe execution of work.

Walkthrough – Depending upon area and job site familiarity, the AJHA Team may perform a physical walkthrough of the job or a tabletop exercise. The team utilizes the AJHA computer program and associated printouts and checklists as guides.