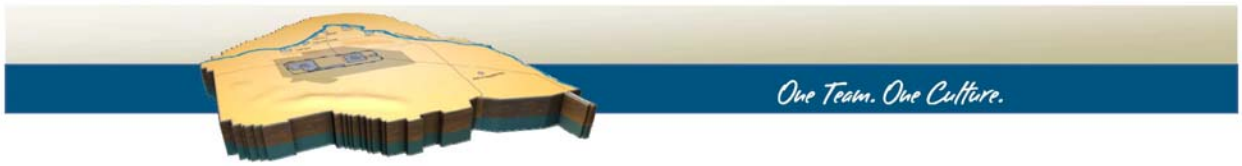

Guidance Document

PRC-GD-WKM-17132

Automated Job Hazards Analysis Process Guide

Revision 1, Change 3

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Project: CH2M HILL Plateau Remediation Company
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Administrative Use

CH2MHILL
Plateau Remediation Company

CHANGE SUMMARY

AJHA: N/A
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Excluded per PRC-PRO-NS-062, Appendix B

Description of Change:

Rev 1-3: Revised Roles and Responsibilities – added Responsible Manager and Work Planning Manager, adjusted Field Work Supervisors position as a result of these additions.

Worksite Hazard Analysis for Skill-Based Work (WHA) will now be required to be maintained with the related work documents.

Cancelled field change section and added information to follow 12115 section 3.10 for field changes

General editorial updates to match changes made in PRO-079 and 12115

TABLE OF CONTENTS

1.0 PURPOSE

This Automated Job Hazard Analysis (AJHA) Guide provides information to support consistent and effective implementation of the Job Hazard Analysis (JHA) process applied by CH2M HILL Plateau Remediation Company (CHPRC) employees.

2.0 SCOPE

This guide applies to CHPRC employees participating in hazard analysis and control conducted in accordance with PRC-PRO-WKM-079, *Job Hazard Analysis.*

3.0 IMPLEMENTATION

This guide is available for use upon publication.

4.0 APPROACH

NOTE: *This guide addresses the following subjects. Navigation links are provided.*

Job Hazard Analysis Integration with Work Management

- Hazard Analysis Decisions and Pathways
- PRC-PRO-WKM-079, Appendix B Skill based Work
- Hazards Analysis and Documentation
- Skill based, PRC-PRO-WKM-079, Appendix B Process
- AJHA Process
- AJHA Team
- Approach for Procedures and Work Instructions
- AJHA User Guidance and Pointers
- Standing AJHA
- Useful AJHA Forms and Features
- Feedback and Post-Job Reviews
- Roles and Responsibilities

4.1 Job Hazard Analysis Integration with Work Management

Activity-based job hazard analysis is conducted in an integrated fashion with the work management process, as described in PRC-PRO-WKM-079. All work is to be reviewed to determine/identify the hazards for the specific activity. Results of this review must be documented. The baseline hazard analysis for all employees is documented in the General Industrial Hazards Analysis (GHA), and the related hazards and controls are discussed in the CH2M HILL General Employees Training (CGET). Craft-Specific Hazard Analysis (CHA) documents the general hazards and controls related to general hazards encountered during normal application of the craft person's skills. These two documents do not address the working environments where each individual will be assigned to work or to a given task or activity. The *Worksite Hazard Analysis for Skill based Work (WHA) form* (A-6004-539) will ensure workers are not exposed to hazards beyond those address in the GHA and CHA. If the hazards justify additional analysis, then a detailed AJHA must be prepared.

This initial step is to review the work and compare/evaluate hazards against the criteria outlined in PRC-PRO-WKM-079, Appendix B, "Initial Hazard Analysis Determination Criteria," to determine if work is skill based. The GHA, CHA, and WHA help support the Responsible Manager's skill based work determination. Once the task/activity has been determined to be skill based work, proceed as follows:

- If the work and hazards meet PRC-PRO-WKM-079 Appendix B skill based criteria, then document this decision. Once the screening is documented, the hazard analysis process conducted during the work planning phase is then complete. Documentation requirements are addressed in Section 4.3 of this guide and in PRC-PRO-WKM-079, Section 3.2.1.12.
- Prior to conducting work, review/walk down the job site and identify/evaluate the hazards/activities using a WHA
    - If a WHA exists for this activity in the proposed location, the work team is not required to generate a new WHA, but they will verify whether any new hazards/activities exist and mark-up the existing WHA accordingly.
    - Check the hazards/activities on the WHA form as you identify them in the field.
    - If the walk down identifies a hazard/activity not listed on the WHA, is outside any stated criteria on the form, or no hazard analysis is apparent (IH review, permit, postings, etc.) additional analysis may be required. Contact the appropriate subject matter expert (SME) for assistance. Depending on the results, the work might require a full AJHA be completed.
    - Place the FWS name on the bottom of the WHA. Signature or printed is acceptable.
    - Keep the completed WHA with the related work documents.
    - WHAs associated with facility approved procedures performed without a work package, require facility retention until no longer needed, then retire in accordance with RIDS

With the exception of work that is documented as meeting the skill based Appendix B criteria, an AJHA is used in concert with developing a work plan, preparing procedures for activities, and conducting the work within controls. The AJHA may also be used to validate and document the Appendix B determination, if desired. When an AJHA is required, an AJHA Team is used to complete the hazard analysis process.

4.2 Hazard Analysis Decisions and Pathways

Figure 1 and Section 3.0 of PRC-PRO-WKM-079 describe the decisions that must be made for the hazard analysis process, as well as the resulting actions to be taken. Figure 1 is also provided in this guide. The possible process pathways are:

- **Pathway 1**: Work and hazards meet Appendix B [PRC-PRO-WKM-079] skill based criteria, as determined during an evaluation of the work scope, hazards, and controls. Otherwise an AJHA is required.
- **Pathway 2**: Work and hazards do not meet Appendix B skill based criteria or uncertainties exist, requiring further hazard analysis, using the AJHA application. The hazard analysis indicates that hazards are sufficient to warrant a full AJHA Team with AJHA completion.

Additional details for these pathways are discussed below in this section of the guide. See Figure 1 and the Worksheet for Hazard Analysis Process Pathways in Appendix A for additional details.

4.3 PRC-PRO-WKM-079, Appendix B Skill based Work

(Pathway 1 in the Worksheet for Hazard Analysis Process Pathways (Appendix A of this guide)

Work and associated hazards are evaluated against Appendix B skill based criteria of PRC-PRO-WKM-079 to determine if work is skill based. When Appendix B skill based criteria are clearly met, the evaluation and result are documented. This satisfies the hazard analysis required during the work planning phase. Options to document the skill based evaluation are provided in PRC-PRO-WKM-079, Section 3.2.1.12 and are summarized below:

- Using the selection box designated for this purpose (such as Skill based, AJHA required, etc.) with signature, in the job controls systems, Job Control System (JCS).
- Procedures established shall document the skill based decision within the procedure or on paperwork associated with procedure changes. Either would include approval signatures that would also attest to meeting the criteria outlined in Appendix B.
- Duplication of PRC-PRO-WKM-079 Appendix B with specific activity, signature block and date added.

For work that has a documented decision that states PRC-PRO-WKM-079 Appendix B skill based criteria are met, use the *Worksite Hazard Analysis for Skill based Work (WHA) form* (A-6004-539) to identify the hazards to ensure the activity is still skill based or requires further analysis.

Any uncertainty regarding Appendix B, of PRC-PRO-WKM-079, skill based criteria indicates that further hazard analysis using the AJHA application is required.

4.4 Hazards Analysis and Documentation

(Pathway 2 in Appendix A to this guide)

For work that does not meet PRC-PRO-WKM-079, Appendix B, skill based criteria (or when this determination is uncertain) the AJHA Coordinator conducts additional hazard analysis using the AJHA application.

NOTE: *Worker and support organization involvement should be promoted at the earliest stages of work planning. Such experience provides a valuable resource in hazard identification.*

The hazards analysis process to prepare an AJHA is described below:

1. "Initial" Hazards Identification Screening Activity

During the initial hazards identification screening activity, the AJHA Coordinator:

- Obtains applicable work documents, existing AJHAs, feedback, lessons learned, and other pertinent information, and reviews applicable work history.
- Initiates a new AJHA in the AJHA database for the intended activity and enters available task information.
- Performs a preliminary assessment of probable hazards, controls, and Environment, Safety, Health and Quality (ESH&Q) requirements and answers Hazard Preliminary questions in the AJHA program as appropriate and/or known.
- Confirms existing work conditions, evaluates potential for changing conditions, and identifies additional hazards, exposures, or constraints (including interfacing hazards and co-located work impacts).

NOTE: *For initial hazards identification screening, it is acceptable for the AJHA Coordinator to confirm existing conditions, but at the AJHA Coordinator's discretion, others can be involved such as worker(s), field work supervisors (FWS), SMEs, cognizant engineers, etc.* ***Employee involvement is strongly encouraged early in the planning and hazards identification and analysis processes.***

- Identifies the worker/craft types to participate in the AJHA process.
- Identifies preliminary ESH&Q requirements including radiological controls and environmental processes.
- Identifies the SMEs and related project or facility technical disciplines.
- Identifies tools, equipment, and materials and determines if they could introduce new hazards.
- Develops the draft work instructions for the activity.

2. Once the initial hazards identification screening is complete, the AJHA Coordinator convenes an AJHA Team and proceeds with full AJHA completion and finalization.

4.5 Skill based, PRC-PRO-WKM-079, Appendix B Process

Two new baseline hazard analysis documents have been created that address the normal hazards worker are exposed to during the normal application of their specific trade or craft, General Hazards Analysis (GHA) and Craft Specific Hazards Analysis (CHA). These hazard analysis documents are to be used in conjunction with PRC-PRO-WKM-079 and its Appendix B. However, these documents do not address the environment in which these activities will be conducted.

The GHA applies to all personnel employed by CHPRC. This hazard analysis applies to those hazards that are not normally covered in work instructions, or technical procedures. Specific to those hazards having caused or been a part of the cause of injuries received by CHPRC employees during the past months on the Hanford Site. The hazards are also addressed in CGET and HGET. This hazard analysis is used in conjunction with the CHA document.

The CHA includes the hazards analysis for general work activities that a journeyman craftsman performs routinely with limited work instructions. The controls listed in this hazards analysis are those that the craftsman with journeyman skills is expected to utilize in the performance of their daily work. As such, the controls do not necessarily need to be documented in work instructions. After reviewing the work scope, location, the hazards involved, determine if the CHA adequately addresses the hazards identified in the work activity, then determine if the work activity is beyond skill based.

The skill based decision is based on the GHA, CHA, and Appendix B of PRC-PRO-WKM-079. If the skill based criteria are met, this documented decision completes the hazard analysis requirement during work planning. See Appendix B of PRC-PRO-WKM-079 for complete criteria to conduct the skill based, initial hazard analysis determination. Key elements and pointers regarding these criteria are highlighted below.

- If engineering controls, Personal Protective Equipment (PPE), and/or particularly respiratory protection need to be specifically assigned to protect workers from the hazards of the identified work activity, then the work is probably NOT skill based.
- However, if such controls are already in place or have been identified in previous hazard analyses and/or approved permits (e.g., Radiological Work Permit (RWP)) and have RadCon or Industrial Hygiene approval, then the work activity could be determined to be skill based.
- If hazards are such that controls are required that are beyond those previously assigned by Industrial Hygiene and/or Safety personnel, then the work is probably NOT skill based. For example, if area postings or other notifications are in place for noise/hearing protection or heat exposure/controls, but the work activity requires additional controls or a greater level of controls for these hazards, then more detailed hazard analysis and controls would be needed through the AJHA process.

  However, if such hazards are present, but existing controls (e.g., area postings or other general safety precautions), are adequate to address the hazards, then the work activity could be worked as skill based.

If the hazards or the nature of the work itself are such that workers require specific training beyond their normal proficiency or job position, or beyond their normal understanding of hazards and controls, then the work activity is NOT skill based. However, if the activity is routine, not complex, and within the normal skills, qualifications, and training of the workers, then the work activity could be skill based.

In addition to the above points, the work must generally be of very, very low potential for introduction of new hazards, of low radiological hazards, and of no potential for exposure or accessibility to hazardous energy sources or hazardous materials that have not been previously evaluated and approved. See PRC-PRO-WKM-079, Appendix B, for the complete skill based, initial hazard analysis determination criteria.

Rule of Thumb: If there is any uncertainty in making a skill based decision, then proceed with the AJHA process (see Section 4.6, below).

NOTE: *One possible way to resolve any uncertainty in the skill based decision would be for the Planner to at least complete the AJHA preliminary hazards and detailed hazards screens to determine if hazards are such that warrant proceeding with full AJHA completion.*

Example skill based decision processes for some hypothetical work activities are provided below:

- A work activity is required in a rad contamination area that involves disturbance, handling, and transporting of lead materials, including cleanup of any lead oxide deposits. A general RWP is in place. The work is considered of low hazard from a radiological perspective. The general RWP does not address lead hazards. Personal protection equipment (PPE) and respiratory protection for the lead hazard will be required, but workers have lead worker training and have performed similar activities in the past.

Is the work skill based? The answer is NO. The work must be planned and an AJHA is required to address the lead hazard and specify the appropriate PPE and respiratory protection. Lead cleanup processes must also be specified. Even though workers have lead worker training, the activity specific controls and safe work practices must be detailed in the AJHA. A corresponding job specific radiological work permit (RWP) may also be required. If this type of function is to be periodically performed in this or other areas, then a Standing AJHA could be prepared to address the hazards and controls for this general type of work.

- A work activity is required to fabricate equipment in a shop. The activity requires hot work including welding, sanding, and grinding of steel. High noise levels will be encountered. A variety of hand and powered tools will be used which pose various safety hazards. This activity is routinely conducted in the shop, which is properly equipped with PPE and ventilations systems and has other controls for high noise and other hazards. The work is performed by skilled craft. However, the equipment to be fabricated has not been fabricated before.

Is the work skill based? The answer is YES. The shop is equipped for this type of work and controls are in place and have been previously designed, implemented, and used.

Even though the particular equipment to be fabricated is new, this type of work is routinely performed by skilled craft with appropriate safety training.

- The same shop fabrication work as described above is required, but the equipment is to be fabricated from stainless steel, which the shop has not been designed to process. However, the craft are still trained and skilled in working this type of material. Potential for chromium and hexavalent chromium hazards from stainless steel hot work are now introduced.

Is the work skill based? The answer is NO. The chromium hazard may require additional levels of engineering controls and respiratory protection. In addition, exposure monitoring may be appropriate. Work planning with full AJHA completion and Industrial Hygiene involvement is required. If this type of work is now to be routinely conducted in the shop, then a Standing AJHA may be appropriate.

- A maintenance re-lamping activity is required in a rad contamination area. A general RWP is in place that addresses routine maintenance activities. The activity is considered low hazard from a radiological perspective. Use of PPE per the RWP is required. A step ladder is also required. Re-lamping of this type is routine for the craft that have Rad Worker training and proper instruction in lamp handling and disposal.

Is the work skill based? The answer is YES. The RWP addresses routine maintenance. No new hazards are introduced. Ladder safety training and lamp disposal instructions are provided to re-lamping craft.

4.6 AJHA Process

1. The AJHA is the most rigorous means for completing job hazard analysis. The AJHA is prepared and/or used:

   - For all activities where hazards, controls, and/or training requirements have been determined to be beyond PRC-PRO-WKM-079, Appendix B, skill based criteria.
   - Whenever a procedure is developed for an activity that is beyond Appendix B skill based criteria.
   - Whenever an AJHA Team is used for job hazard analysis.

2. When an AJHA does not already exist for the work, the AJHA completion and implementation processes are described below.

   - AJHA Coordinator (Planner, Procedure Author, or Procedure Technical Authority) reviews work request, understands problem, gathers baseline data, identifies needed materials, and describes the scope of work (see PRC-GD-WKM--12116, *Work Planning Guide*).
   - AJHA Coordinator starts an AJHA and describes the scope in the Task Information Screen.

- AJHA Coordinator conducts the initial hazards identification screening activity to include the initial hazard analysis by individually completing the Preliminary Hazards screen and possibly the detailed hazard screen. This will assist in determining if an AJHA is required and which SMEs must be involved.

- As part of the hazard screening and work planning process, the AJHA Coordinator conducts a job site review/walkdown to review site conditions and any adjacent activities for potential hazards. The walkdown may include workers, SMEs, engineers, or other interested parties. The expectation for the Work Planning Team is to do a walk down of the site for hazard identification from their point of view and to determine proper mitigating actions.

NOTE: *The jobsite review process is used when the walk down of the worksite is not feasible, such as a radiation area where access and exposure is a concern, or to confirm site conditions when the planning team has walked this down as part of scoping the job, or if they have walked it down recently for a similar job within the past 2-3 months.*

- AJHA Coordinator initiates the AJHA Planning Team session as needed based on potential hazards. See Section 4.7 for guidance on AJHA Team involvement.

- The AJHA Planning Team reviews the task and requirements and confirms and/or modifies and finalizes the hazard screens during the AJHA Planning Team session. This review may require a worksite walk down. See Section 4.7 for guidance on AJHA Team Involvement. The expectation for the Work Planning Team is to do a walk down of the site for hazard identification from their point of view, and to determine proper mitigating actions.

- SMEs conduct any specific analysis actions required based on hazards identified and determine if any controls or other actions are warranted. SMEs acknowledge that the analyses are conducted and that the appropriate information from the analysis is applied in the controls screen.
- AJHA Planning Team members (including SMEs and others as appropriate) specify hazards, controls, and forms/permits required. This is to include any contingencies with related actions and controls.
- AJHA Coordinator and SMES, ensure the controls from the various forms, permits, MSDS's are placed appropriately in the work instructions.
- When specific analyses and controls are complete, SMEs signoff in the Involvement screen. Other participants are listed by the AJHA Coordinator in the involvement screen by the activity in which they took part, AJHA sessions or walk downs.
- AJHA Coordinator finalizes AJHA and prints report.
- The AJHA Coordinator (Planner, Procedure Author, or Procedure Technical Authority) incorporates results of the AJHA into the work documents, work instructions, or procedures, as appropriate.
- The Work Planning Team SMEs will review the AJHA and work instructions to ensure that the controls specified for each hazard are complete and that all controls together do not conflict and are easily understood by the reader.

- When work is to be conducted, hazard control related changes are made to the work instructions or technical procedure per their respective change process.
- After work completion, changes may be made (if desired) to the AJHA for documentation and future reference when similar activities are conducted.

3. When an AJHA already exists for the work, proceed as follows:

- AJHA Coordinator identifies the AJHA and verifies its appropriateness.
- AJHA Coordinator initiates a revision or clone of the AJHA if necessary based on changing hazards/conditions/requirements.

4.7 AJHA Team

The use of an AJHA Planning Team with worker involvement to identify, evaluate, and control hazards is an important element of the CHPRC Integrated Safety Management System (ISMS) and AJHA completion is part of that system. The following guidance describes how to apply team involvement for the AJHA process.

1. What Is a Team?

For the purpose of the AJHA process, a Team is:

- Personnel representing the necessary disciplines whose involvement in planning is vital to ensure safe work.
- This could be something as simple as an AJHA Coordinator with appropriate worker or Field Work Supervisor input.
- Or it could be a much larger group with members representing many different areas of expertise (e.g., various Craft, Radiation Protection, Occupational Safety, Industrial Hygiene, Engineering, Operations, etc.).
- The AJHA Coordinator (with RM input for work documents) makes the determination of team size and make-up, based on the nature and hazards of the work determined during the preliminary hazard identification screening.
- The AJHA Coordinator‘s initial planning and hazard screening activity including preliminary completion of the AJHA Hazard Tree can be helpful in deciding who should be involved (i.e., once the Tree is complete, the Involvement Screen of AJHA shows mandatory involvements and identifies hazards where other involvements could be warranted).

2. When is an AJHA Team Needed?

AJHA Planning Team is needed whenever an AJHA completion is needed. Therefore, an AJHA Team is needed when work is not skill-based per Appendix B of PRC-PRO-WKM-079. But *keep in mind* that:

- The AJHA Planning Team is determined using a graded approach, based on job requirements and potential hazards.

- The Team may consist of only an AJHA Coordinator with consultation of a worker or field work supervisor, or it can involve many others, if appropriate (See Section 4.7.1 and Section 4.7.3).
- A Team session is not necessarily required, but is highly recommended. For instance, in some cases, timely and close interaction and communication between Team personnel constitutes effective Team work and Team planning; however, in many cases a Team session is important to ensure discussion and resolution of issues.

3. Who should be on the Team?

   Team size and make-up is at the AJHA Coordinator's discretion (with RM input for work documents). Some pointers are:

   - During initial hazards identification screening activity, the AJHA Coordinator identifies the hazards in the Hazard Tree and then can go to the Involvement screen and see if there are any "Mandatory Involvements." If so, include these disciplines on the Team. Other involvements would be at the AJHA Coordinator's discretion based on the results of the initial hazards identification screening.
   - Worker involvement is always encouraged. Even for straight-forward jobs of lower hazard potential, consultation with a worker and field work supervisor is strongly encouraged.
   - The initial walkdown or work site review may be useful to determine the challenges of the job and who should contribute to the AJHA.
   - It is usually best to keep the Team limited to those that are vital to the safe performance of work. It is usually more productive and effective to have a smaller Team made up of essential personnel, rather than a large Team of multiple personnel with little to contribute.
   - Do not form a cumbersome cast of representatives in a full and formal team session for an activity where hazard identification and control actions are straight forward. Conversely, ***do not*** hesitate to involve those vital to planning safe work.

4. What Methods are used to Accomplish Team Planning and how is it done?

   - Preferred: A face-to-face AJHA Team session is the preferred option, particularly for work with a higher degree of complexity and for work with multiple hazards potential. The optimum approach for this is a Team session in a room of adequate size using a projector, such as an "In-Focus" machine.
   - Adequate Alternative: Team sessions are not always feasible, so other techniques such as walkdowns or electronic and verbal communication can be used to ensure teamwork. But, it is important to get ***timely*** and ***early*** involvement as appropriate, rather than simply soliciting a "signature" as the first input.
   - Timely involvement of the Team members is essential for the function of the Team.

5. How Can Team Planning Be Achieved Without a Team Session?

   When a Team session is not feasible, some tips on accomplishing Team planning include:

   - Get the workers or others involved for an initial job walkdown or work site review and include their input for the AJHA.
   - Use timely electronic communications to get FWSs, SMEs, and others to review the job and hazards and incorporate controls.
   - Ask appropriate personnel to review the AJHA Coordinator's initial completion of the Hazard Tree and controls.
   - Notify SMEs to review and conduct the "Special Analysis" as soon as the Hazard Tree is complete.
   - Communicate verbally, electronically or any other way that is effective.

Acceptable Indicator: If timely and early input is achieved in the AJHA process (not at the eleventh hour), then teamwork has been achieved.

Unacceptable Indicator: Teamwork has not been achieved if the first involvement of the SME is to be asked for a signature on the AJHA, or if the first involvement of a worker is during the pre-job briefing.

4.8 Approach for Procedures and Work Instructions

The hazard analysis process is essentially the same, whether conducted on a planned maintenance or operations activity or a proceduralized activity. Remember the hazard analysis is applied to the activity described in a procedure or work instruction. As a result of the hazard analysis, the Procedure Writer or Work Package Planner uses the output of the AJHA to ensure all necessary controls and SME reviews are incorporated or applied to the procedure or work package. Some key points include:

- For work packages; the RM, supported by the Field Work Supervisor (FWS), determines if the work and hazards meet the criteria of PRC-PRO-WKM-079, Appendix B for skill based work.
- For technical procedures, developed per PRC-PRO-MS-589, CH2M Hill Plateau Remediation Company Procedures, the procedures Technical Authority (TA) in coordination with the Functional Manager determines if the work meets the criteria of PRC PRO WKM 079, Appendix B for skill based work.
- If work meets Appendix B skill based criteria, then this decision is documented and no further hazard analysis is required during work planning.
- If Appendix B skill based criteria is not met (or if in an uncertain middle ground), the AJHA Coordinator conducts further job hazard analysis using the AJHA application.
- Initial hazards identification screening includes such items as a work site review or walkdown to confirm existing conditions and identify potentially changing conditions. It is emphasized that the AJHA Coordinator should conduct such walkdowns for the area/activity to confirm existing conditions, and not simply do a hazard analysis against a document. This may not be feasible if a procedure is generic to any worksite; however,

many procedures apply to a particular type of worksite, if not a specific worksite. So, walkdowns or site reviews of representative or actual work areas should be feasible in many cases.

- The hazard analysis for the procedure must be conducted against the area/activity and not just a document.

Remember: The overriding factor in determining the need to conduct a job hazard analysis using the AJHA application is the decision whether the work meets Appendix B skill based criteria or not. But, any uncertainty should drive the work to the AJHA.

4.9 AJHA User Guidance and Pointers

1. Types and Variations of AJHAs

Initiated AJHA: An AJHA that has been started but has not been finished within 180 days.

Aged-Out AJHA: When an Initiated AJHA is over 180 days old, the status is changed to "Aged-Out" and it is "locked out". Aged-Out AJHAs can be returned to the "Initiated" status by the AJHA Facility Support Administrators (FSA) for continued development; if after 10 days the AJHA is not finalized it will return to the "Aged-Out" status. Aged-Out AJHAs may also be "revised" which will bring into the AJHA all changes made to the AJHA system since the original AJHA was created. The original AJHA, (revision that was aged-out), will then will be made Inactive.

Standing AJHA: A Standing AJHA is active over a period of time (e.g., one year or other period as allowed in PRC-PRO-WKM-079 in Section 6.1.18) and applies to a work activity or procedure that is conducted recurrently or periodically. Use of a Standing AJHA avoids redundant hazard analysis for the same work.

Completed AJHA (Job/Activity Specific AJHA): A Job/Activity Specific AJHA is prepared for a specific work activity and its lifetime is limited to conducting only that activity.

AJHA Revision: An AJHA Revision is made when a change is required for the SAME work activity. The original and all revisions are saved in the AJHA database. All revisions have the same AJHA Number with a unique Revision Number.

AJHA Clone: An AJHA Clone (copy of an existing AJHA) is used when work of a similar nature is being planned. This allows the Team to have a partially completed AJHA that has been useful to serve as a starting point for a new but similar work activity. The cloned AJHA is distinct from the original AJHA.

2. When Should a Job Specific (Complete) or Standing AJHA Be Used?

Job Specific (Complete): Use this when the work is unique; that is to be performed and completed as a finite activity with a limited duration.

Standing: Use this when the work is to be conducted repeatedly or periodically over a given time frame.

3. What is the Difference between an AJHA Revision and Clone?

AJHA Revision: Use this when a change is needed for the same work activity. When an AJHA is revised, its "parent" is saved in the database, and its revision is added with the same original number plus a revision number. Necessary changes are made to the revision and when complete, it is finalized and then used for all future work on that activity, unless revised again. The revision will contain all the new changes in the AJHA tool made since the parent was created. All impacted hazards will be returned to the unanswered status for review. An AJHA can only be revised from the latest revision.

AJHA Clone: Use this for a new or different work activity. When an AJHA is cloned, its "parent" remains in the database unchanged. The parent retains the same status as it had prior to cloning. The existence of the parent does not impact the clone and vice versa. The clone is given a new and unique number because it is for a similar but different activity. The purpose of the clone is only to provide an accelerated starting point for conducting hazard analysis for similar work, thus avoiding redundancy. The clone will contain all the new changes in the AJHA tool made since the parent was created. All impacted hazards will be returned to the unanswered status for review.

NOTE: *Only Completed or Standing AJHAs can be revised; All AJHAs, even in the Initiated status, can be cloned.*

4. How are Contingency Hazards/Controls established/set for Changing Field Conditions?

Some methods for adding contingencies:

- Use the "Comments" function in the Hazard screen to describe contingencies in a text field.
- Use the "User Added Controls" function and the "Details" function in the Controls screen to describe contingencies and appropriate control actions.
- Use one of the three "User Added Hazard" on the Hazard Tree to add additional hazards as appropriate to address contingency and control/actions.

  Use hazard-specific Forms/Permits to show contingency controls or actions. For instance, the Hot Work Permit has text fields to define what should be done under various circumstances. Other forms/permits also have such features.

5. When is a Standing AJHA Prepared?

A Standing AJHA can be prepared under the following circumstances:

- For a proceduralized activity where the work is to be performed periodically to the procedure.
- For a work activity that is performed periodically over time, such as a maintenance activity.
- For a specific activity in a specific area (e.g., general shop safety or visitors walking through a shop), to address general hazards.
- Generally, where the same or similar work is recurrent.

6. What is a Reasonable Review Date and Review/Revision Cycle for a Standing AJHA?

Requirements for setting the review date for a Standing AJHA and performing reviews and/or revisions are provided in PRC-PRO-WKM-079, Section 6.1.18, "Requirements," and additional guidance for review and revision of Standing AJHAs follows:

- If the Standing AJHA is written for a procedure, match the review date of the Standing AJHA with the review date of the procedure. This will ensure that both are reviewed and revised together. Review dates should not be longer than 3 years.
- If in the interim, the procedure is reviewed and revised (except perhaps for reasons unrelated to hazards/controls; e.g., editorial changes), then the Standing AJHA should likewise be reviewed and, if appropriate, revised simultaneously.
- If an inactivated procedure is re-activated, then review, revise, and re-activate the associated Standing AJHA, setting the review date to the same review date as the procedure.
- If hazards of the work change, if there is a significant change in the work environment, or if new equipment or tools are introduced, then review/revise the Standing AJHA.
- If revised work instructions or process steps are implemented that may affect the performance of the work or hazards and controls, then review/revise the Standing AJHA.
- In the case of an accident, near miss, or formal lessons learned, review and revise the Standing AJHA.
- If hazard controls are determined to be no longer effective, then the Standing AJHA is to be reviewed and revised. If the Standing AJHA is prepared as a stand-alone or separate document (e.g., not specifically associated with a procedure) then the review date should be one year from Standing AJHA completion. PRC-PRO-WKM-079 requires a Standing AJHA review every 12 months when prepared as a standalone or separate document.

Standing AJHA reviews should be documented in some manner, even if the review did not result in a modification, revision, or other change. Documentation can be made by using the Activity Notes function in the AJHA application or by creating a formal revision of the Standing AJHA.

7. How Should the Scope be Defined for a Standing AJHA (Broad or Narrow)?

If the scope of a Standing AJHA is too broad, many hazards will likely be identified that often do not apply when the job is worked. Conversely, others not identified may apply at a particular time. This results in an AJHA of little value because many hazards/controls have to be waived or added at the time of the work.

Some ideas to address this challenge are as follows:

- For the same activity, develop multiple Standing AJHAs for the various conditions. For example, two Standing AJHAs for the same work activity could be developed, one conducted in a radiation zone and the other in a non-rad zone. Even further narrowing within these zones could be made, if appropriate.

- Use the “Comments” function in the Hazard screen to add additional information on hazards and the “Details” function on the Controls screen to add additional information on control actions. Such comments could state for example “When the activity is conducted near power lines, also apply the following requirements…” Those requirements would then be detailed on the form. The Comments/Instructions form would NOT apply unless the conditions were present. The Activity Notes function could also provide explanations that bound the activity.
- Contingencies can also be listed in the Controls “details” boxes for any given hazard. The Hazard screen function to add “Other” Hazards can also be used for contingencies. Be careful not to mark too many of the hazards/controls as contingencies or this could be confusing. The Comments/Instructions form may be another alternative, because if it does not apply, then the form does not have to be provided with the AJHA for that particular work event.

8. AJHA Changes

   For work packages; changes to hazards and controls after finalization of the AJHA are incorporated by a change to the work package instructions following the Work Management change control process outlined in PRC-PRO-WKM-12115 Section 3.10, Work Package Change Process.

   The AJHA may be updated/changed by using the AJHA revision process if desired. The RM has the responsibility to decide if a revision to the AJHA is to be performed.

   The Activity Notes function in the AJHA program can be used to provide AJHA documentation of the changes made via the work management change process where it was not desired to revise the AJHA of the changes.

   The AJHA may also be revised, if desired, upon completion of work to reflect the hazard and control changes identified that resulted in a change to the work instructions.

   All changes require the FWS and SME involvement for determination of corrective actions, and the RM will approve work document field changes as outlined in PRC-PRO-WKM-12115, Section 3.10.

   For technical procedure changes; changes to hazards and controls after finalization of the AJHA can be made via an AJHA revision and the procedure change process identified in PRC-PRO-MS-589.

9. How are Activity vs. Area Hazards Included on a Standing AJHA?

   When preparing a Standing AJHA, it is sometimes difficult to predict area hazards, because some work activities can be conducted in numerous areas and because area conditions can change. Each time a Standing AJHA is used, a general review of the AJHA and a walkdown or review of the area should be performed to ensure the AJHA is still current and the conditions in the work area have not changed. Some general rules of thumb in addressing area versus activity hazards in a Standing AJHA are provided below.

   - Hazards/controls that are associated with the activity should be included in the AJHA.

- For Standing AJHAs conducted in one area, in similar areas, and in areas of fairly stable conditions: Include the area hazards/controls in the AJHA along with the activity hazards/controls.

For Standing AJHAs conducted in multiple and varied areas or in areas with variable conditions: One option is to use the "Task" feature to identify the various locations, and trigger only those hazards and controls that apply to the specific location.

It would also be appropriate to add a control for a "user added hazard" that alerts the work team that work area hazards can vary, that work area hazard/control postings are to be reviewed and followed, and that any work area specifics be addressed prior to starting the work activity. The "Comments" function in the Hazards screen and/or the 'Details" function in the Controls screen can also be used.

4.10 Useful AJHA Forms and Features

Several forms and other features were developed specifically for AJHA to assist the AJHA Team. Some important ones are described in this Section.

Forms can be printed as blank forms to be used in the field, or they can be used to include instructions as part of AJHA completion.

1. Hazard Comments Function.

On the Hazards screen, there is a "Comments" function next to each hazard statement. Use this function to:

- Provide more information regarding the hazard.
- Identify contingencies regarding the hazard.
- Describe conditions where the hazard may or may not be encountered.

2. Control Details Function on the Controls Screen

The controls for a hazard that are Mandatory or selected are compiled and listed in the Controls screen. Next to the listing for each control on the right is a Details button. Use this button to go to a text field to provide details for the control. For instance:

- When respiratory or personal protective equipment is listed as a control, write in the details (i.e., respirator type, glove type, protective clothing type) next to the generic control. The same applies to any other type of control.

3. Breakdown Job Phases on the Task Information and Controls Screens

- The Task Information screen has a feature to separate the activity into as many as seven tasks. This task breakdown feature can be used, if desired, to segregate hazards and controls by job phase. In this manner, hazards/controls can be assigned to a particular part of the activity, rather than implying that they apply throughout the work activity.

For instance, in the case of a system repair, a closed system may need to be breached and then the repair made. Hazards/controls may vary during the breach and the repair itself. In this case:

Activity Description: System Component Repair.
- Task1: System Breach and Stabilization.
- Task2: Component Repair.

Hazards/controls of the breach would be listed under Task 1 only and would not apply to Task 2. Likewise, hazards/controls of Task 2 would be listed there. These hazard/control assignments are made on the Select Controls screen where the overall job scope is shown with a bulleted circle and the individual Tasks are numbered to the right of the overall job scope.

4. Involvement of SME and Participants

Documenting the involvement in the AJHA is very important in the job hazards analysis process. The Involvement screen identifies SMEs that must be involved in the AJHA completion process, and indicates areas that require their approval. It is also required to list other participants in the AJHA process. This includes AJHA sessions, walk-downs, or site reviews.

Certain hazard questions in the Identify Hazards screen, when answered "yes," either trigger the requirement for SME approval based on the hazard and/or trigger the requirement for a SME to conduct a “Specific Analysis” to evaluate the hazard and possibly specify controls. The type of SME triggered and the hazard question that triggered the involvement are listed in the Involvement screen. This tells the AJHA Coordinator, Team, and SMEs where in the AJHA that the SMEs must offer input. The Involvement screen distinguishes whether the SME was triggered based on the hazard itself or based on the requirement for the SME to conduct a Specific Analysis for the hazard.

Involvement could mean anything from a phone call and brief discussion to participation in detailed planning sessions, walkthroughs, and control development. The SMEs, AJHA Coordinator, and Team should determine the necessary extent of SME involvement based on the hazards, conditions, and risk.

In the case where the Involvement screen shows the need for a Specific Analysis, the SME must conduct and document this analysis. For documentation, the SME must go to the SME Analysis area on the Controls screen and click the drop down selection icon to enter the name of the SME completing the analysis. The SME may enter any SME notes/comments regarding the analysis in the SME notes section area that is available as a drop down selection located near the “Add SME Control” button. The requirement for an analysis does not necessarily mean that any controls or other actions are required. The SME should determine this on a case by case basis. The SME should select the controls that apply from the pre-populated list of controls, or add controls through the Users Added Controls feature. Controls can also be clarified or modified through the use of the Details screen for each control.

SMEs ---- DO NOT PUT CONTROLS IN THE NOTES SECTION! The notes are not part of the Job Hazard Analysis report.

SMEs acknowledge their involvement and approve the AJHA by entering their names for the required SME disciplines that are triggered by the selected hazard questions. This signifies their approval of the AJHA. These SME disciplines and the hazard questions that triggered them, appear on the Involvement screen. The involvement of a particular SME discipline may be required several times in one AJHA as a result of multiple hazard questions, each that require that SME approval and/or Specific Analysis. Different individuals may approve an AJHA under the same SME discipline as reviewers of different hazard questions. In that case, the approving SME should note the scope/limits of their approval/involvement using the Comments function on the Involvement screen. When an SME approves the AJHA for a particular discipline, without any notation, it is understood that they are approving all aspects of the AJHA.

The AJHA Coordinator can also acknowledge involvement for the SME. This entry will be shown as "SME Name by AJHA Coordinator Name." This indicates that the AJHA Coordinator has acknowledged SME approval, but the SME did not personally acknowledge approval in the screen. This functionality is useful for acknowledgement by telecom, for lower risk activities where SME involvement may have only been a phone call, or when the AJHA is not available to the SME. The project/facility should determine under what circumstances this functionality is allowed. **It should not be used unless the SME has indicated his/her satisfaction with the AJHA.**

NOTE: *If a SME's name was added by an AJHA Coordinator, it is highly recommended that an explanation for this be provided using the status and comments functions of the Involvement screen. Examples might include "By Telecom," or "By Verbal Authorization."*

In addition to the SME involvements that were triggered by Identified Hazards, the AJHA Coordinator or Team can involve other SMEs at their discretion. These involvements will be documented in the Involvement screen even if the SME was not triggered.

Other participants, such as Craft, who were involved in the AJHA, will be listed in the Involvement screen. Their names are simply entered off a site roster by the Coordinator and they will also list on the right what role they played or at a minimum the craft they represented. If multiple walk downs or AJHA meetings are held, document these meetings by date and the names of the attendees.

AJHA Facility Support Administrators (FSA) maintain SME lists in the AJHA application via the Facility Maintenance function on the Main Menu. The Projects/Facilities can request modification of the triggers for SME involvement by contacting AJHA Administration, or by forwarding the request over the ^AJHA Mailbox on the Main Menu. Relaxation of involvement triggers may require review by Technical Authorities. The Projects/Facilities can also identify triggers for SME involvement for any additional hazard questions that they wish to add to Identify Hazards. They can also add other involvement triggers, such as involvement of senior management review or a review committee. They can add additional types of SME categories, as well.

5. Required SME Analysis

Many of the potential hazards require a "SME Analysis" to be performed uniquely for the work activity being analyzed. These analyses address details of the work activity that a knowledgeable individual or SME must assess on a case-by-case basis.

- Each SME analysis type control in AJHA indicates the SME discipline required to perform that specific analysis.
- When an SME analysis control is triggered, an SME qualified in the discipline prescribed shall assess the unique circumstances of the work activity being analyzed and perform the specific analysis prescribed in the control text.
- Based on the results of the analysis, the SME must enter detailed specifications to mandatory controls; select from additional (optional) controls, and/or enter "user added" controls to the AJHA as needed.
- When the SME analysis has been conducted by the SME and the needed controls are addressed in the AJHA, the SME enters their name in the section titled "Completed By." This is not an approval. It is just an indicator that the ***analysis was "completed by" the person whose name was entered.***

SME approvals are entered at the involvement screen. However before an SME can approve the AJHA for their SME discipline at the involvement screen, a name must be entered for each specific analysis associated with that SME discipline in the select controls screen. If the SME wished to have notes about their analysis saved for future reference they can add them into the Notes section in the pick list in the Completed By screen. These notes will not print with the standard report, nor serve as direction or controls to the worker. They are only notes, and will only print on the SME Analysis report.

SMEs ---- DO NOT PUT CONTROLS IN THE NOTES SECTION! The notes are not part of the Job Hazard Analysis report.

4.11 Feedback and Post-Job Reviews

PRC-PRO-WKM-14047 requires the field work supervisor or work leader to make a determination as to the need for an informal post-job review or for conducting a formal post-job review.

Formal post-job reviews (or ALARA reviews) are to be documented using the combined *Post ALARA/Post Job Review* (A-6004-821), the results from this form are then to be entered into the Feedback module in the AJHA database by the facility. The formal Post-Job review results could also be entered directly into the Feedback module in the AJHA database during the Post-Job review meeting, and then a printout hardcopy of this feedback will need to be placed in the work document.

Informal post-job review feedback is to be documented in the Job Controls System (JCS).

See PRC-PRO-WKM-14047, *Pre-Job Briefings and Post-Job Reviews*, for further guidance as to when feedback and post-job review is warranted.

The AJHA Feedback Database for formal ALARA/Post-job reviews is accessed from the AJHA Main Menu. The Feedback Database has powerful functions to:

- Categorize ALARA/Post-job reviews by facility, equipment, system, activity type, hazard and other characteristics of the work.
- Search for ALARA/Post Job reviews by the categories and key words.
- Use of the AJHA Feedback Database is required for formal ALARA/Post Job Review.

The Feedback form is a simple text box in the AJHA Feedback Database. Simply develop a Feedback form for the item and categorize it based on the equipment, system, and/or activity. From this initial Feedback module you can select to add the ALARA section, the Post Job Review section, and/or a Roster sections as required. After completion you can retrieve the form using the search or inventory function and add to it whenever a noteworthy feedback item is developed or whenever an improvement is implemented to address feedback. This will provide an historical record over time to document feedback and any action taken to address feedback.

The AJHA Feedback Module lists four different “Types” of feedback. They are:

- Feedback – basic task/job summary with no ALARA or Post Job feedbacks
- ALARA - task/job summary with ALARA information and feedback but with no Post-Job information feedback
- Post Job - task/job summary with Post-Job information and feedback but no ALARA feedback
- ALARA/Post Job - task/job summary with both ALARA and Post-Job information and feedback

These types are set by the AJHA program and are dependent upon which of the selectable sections of the feedback form you choose to add/enter.

5.0 ROLES AND RESPONSIBILITIES

Roles and responsibilities for various disciplines as they apply to use of the AJHA are described in PRC-PRO-WKM-079, Section 2.0.

6.0 FORMS

Post ALARA/Post Job Review (A-6004-821)
Worksite Hazard Analysis for Skill based Work (A-6004-539)

7.0 RECORD IDENTIFICATION

No records are generated by this guide document.

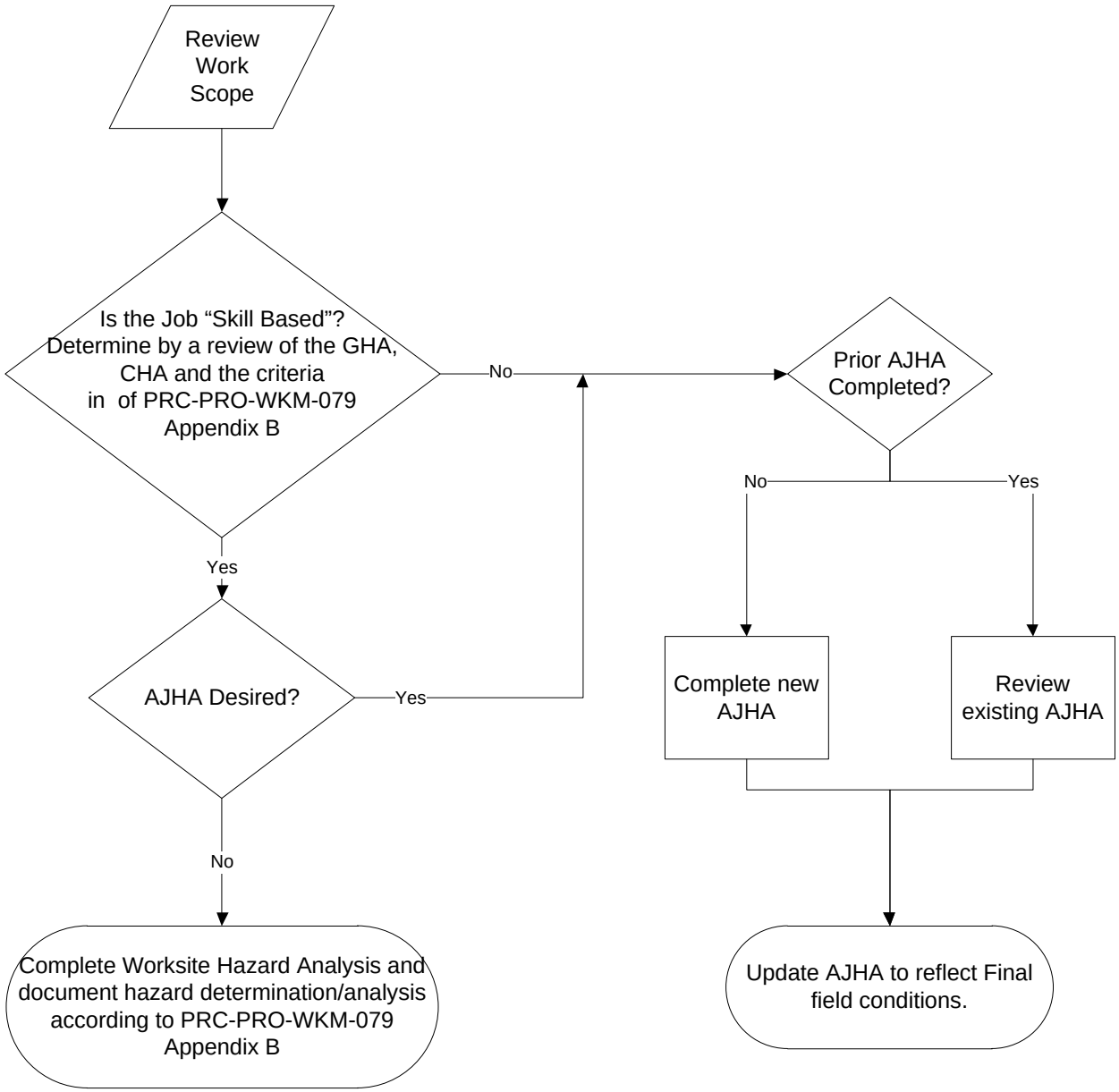
8.0 REFERENCES

PRC-PRO-MS-589, *CH2M Hill Plateau Remediation Company Procedures*
PRC-PRO-WKM-12115, *Work Management*
PRC-GD-WKM-12116, *Work Planning Guide*
PRC-PRO-WKM-079, *Job Hazard Analysis*
PRC-PRO-WKM-14047, *Pre-Job Briefings and Post-Job Reviews*

9.0 APPENDIXES

APPENDIX A. Worksheet for Hazard Analysis Process Pathways
APPENDIX B. Glossary of Terms
APPENDIX C. Conducting an Effective “Analysis” in Activity-Based Job Hazard Analysis

Figure 1 - Job Hazard Analysis Process



*** You may chose to use an AJHA at anytime during this process**

APPENDIX A. Worksheet for Hazard Analysis Process Pathways

References: Summarizes Section 3.0, Figure 1, and Appendix B of PRC-PRO-WKM-079 *Job Hazard Analysis*.

Process Determination: Proceed along one of three possible pathways for hazard analysis and control.

Pathway 1: Skill based Work Per PRC-PRO-WKM-079, Appendix B - Sufficient when workers are trained, medically qualified, and understand the hazards and controls to safely perform work based on Skill based Determination Criteria in Appendix B of PRC-PRO-WKM-079.

- Used for Skill based Work.
- Responsible Manager (for work documents per PRC-PRO-WKM-12115) or the Technical Authority (for technical procedures) makes the skill based decision based on PRC-PRO-WKM-079 Appendix B criteria.
- Hazards are addressed and already mitigated through employee qualification/training, existing permits, existing controls/postings, or other means (see Appendix B criteria).
- CHA in place for the craft positions
- Updates are provided prior to work for worker EJTA, medical qualification, and training, if necessary.
- The skill based decision is documented as required by PRC-PRO-WKM-079, PRC-PRO-WKM-12115, and PRC-PRO-MS-589.
- No AJHA is required.

Pathway 2: AJHA Work Planning Team - Necessary when initial hazards identification screening shows environment, hazards and/or work complexities are beyond the skill based criteria outlined in PRC-PRO-WKM-079 Appendix B. Used when initial hazards identification indicates hazard(s) or condition(s) warrant the AJHA Work Planning Team involvement.

- AJHA Coordinator conducts initial hazard identification and determines that hazards exist and are not easily or already mitigated.
- AJHA Coordinator convenes AJHA Work Planning Team meeting(s).
- AJHA Work Planning Team completes new AJHA or validates/revises/clones existing AJHA.

APPENDIX B. Glossary of Terms

Graded Approach	The process of *tailoring* hazard controls to the work being performed, applying a level of planning and rigor that is commensurate to the level of ESH issues, risk, complexity, and work coordination. Graded approach seeks to achieve a balanced combination of craft skills, written guidance/worker instructions, and worksite supervision.
Hazard Controls	Measures to eliminate, limit, or mitigate hazards to workers, the public, or the environment, including (1) physical, design, structural, and engineering features; (2) safety structures, systems, and components; (3) safety management programs; (4) technical safety requirements; and (5) other controls necessary to provide adequate protection from hazards.
Informal Feedback	A method used to exchange information. Such reviews are not routinely documented, and may be as simple as a face-to-face communication or brief discussion between the worker(s) and the responsible Field Work Supervisor/Work Leader covering any notable safety experience resulting from performance of the work. Such Post job reviews communicate comments to reinforce or influence change in conduct of work.
Job Specific AJHA (Complete):	A Job Specific AJHA is prepared for a specific work activity and its lifetime is limited to conducting only that activity. Status title is "Complete".
Skill based Work	Work meeting the criteria outlined in the Skill based Determination Criteria document in PRC-PRO-WKM-079, *Job Hazard Analysis*, Appendix B.
Worksite Hazard Analysis	The Worksite Hazard Analysis (WHA) process is for identifying, evaluating, controlling, and communicating potential hazards at the work locations associated with skill based work. This analysis will also ensure no new hazards or adjacent activity at the worksite will introduce hazards that will change the skill based work determination (i.e. When hazards are found beyond those hazards identified in the CHA). One WHA for a location can be used for various activities.

APPENDIX C. Conducting an Effective "Analysis" in Activity-Based Job Hazard Analysis

Activity-based Job Hazard Analysis (JHA) is an analysis of associated hazards within a particular job or task. The analysis assesses each aspect (step) of a task and addresses the items which could result in an injury to an individual by focusing on the relationship between the worker, the task, the tools, and the work environment. This involves an evaluation of the mechanics of any operation, identifying what can go wrong, and how to do it safely (controls).

After selecting a job for hazard analysis, JHA is essentially a 2-step process:

1. Identify the hazards, unsafe conditions and unsafe work practices associated with each step of the individual task/operation; and
2. Determine the actions to take to mitigate the hazards and identified contingencies associated with task/operation performance.

How do I "analyze" potential hazards?

In addition to SME and worker input, knowledge of the job scope (e.g., via walk down, past performance, personal experience, lessons learned) is helpful in establishing what could go wrong at each step of the activity. We need to understand the job we are analyzing. This requires careful examination. Discussion and review of the task between the Field Work Supervisor and Team members (including any SMEs) should produce enough information to evaluate the hazards without getting overly detailed. The more familiarity the group has with the task, the less complex the evaluation is likely to be.

Hazards should be analyzed by considering each step in the work activity and anticipating what the worker(s) might encounter during the particular job that is being analyzed. The analysts should consider the work environment, the materials and equipment that are to be used, and the work procedures themselves. Most tasks can be viewed in manageable steps/parts to produce the most effective analysis. Some judgment will be needed; hence, the purpose for selecting knowledgeable individuals to review the work.

To gain a full understanding of the hazard, those analyzing the job should ask such questions as:

NOTE: *This is not intended to represent a complete list*.

- Where is the job happening (environment)?
- What is happening?
- What can go wrong (include contingent events)?
- How could an event happen?
- What are the consequences?
- How could it happen?
- Do I take into consideration the following hazards?
  - Striking against or being struck by an object.
  - Getting caught in or between objects.
  - Use of tools, machines, or equipment.
  - Housekeeping.
  - Lifting, pushing, pulling motions.
  - Organization in flow of work.
  - Reviewing hazards indirectly associated with the work scope (or exterior to the work environment boundaries) that may also be encountered (e.g., an exposure present near a lockout/tagout isolation point that is not in the vicinity of the work; adjacent or collocated work activities.