

Job Hazard Analysis: The How and the Why

Author: David A. Wilson, CHMM IHIT

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Abstract:

Objective - an interactive discussion of job hazard analysis in a plain-speaking, "hands-on" format aimed at hazardous materials managers with regulatory compliance responsibilities.

Scope - the specific regulatory requirements of OSHA § 1910 which drive job hazard analysis, the OSHA-mandated steps in preparing and performing the job hazard analysis, and "real world" examples of actual hazardous materials exposure in a manufacturing workplace setting.

Issues - defining the OSHA rule for when a written job hazard analysis must be completed, how to fulfill the requirements, and emphasis on the job hazard analysis as an essential tool for proper worker protection against hazardous chemicals and other workplace hazards.

Developments and Conclusion - after a "walk-through" of the process used to develop and perform a job hazard assessment, the presentation concludes with tips and suggestions for success resulting from the author's own experience conducting job hazard analyses in an industrial setting with hazardous materials present. The importance of pre-project planning, management support, and careful observation during the assessment are emphasized as key elements for success.

Introduction

A Job Hazard Analysis, or JHA, involves several components:

- Regulatory Issues
- Selecting the Job
- Conducting the Analysis
- PPE Determination
- Review / Update
- PSM Applicability
- Misc. Considerations

Each of these items must be addressed during the course of conducting a JHA.

Regulatory Issues

JHAs are required by OSHA under 29 CFR § 1910.132 (d) (1) for any hazards (likely to be) present that require the use of Personal Protective Equipment (PPE). Additionally, OSHA regulation § 1910.132 (d) (2) requires "...written certification that identifies the workplace evaluated; the person certifying that the evaluation has been performed; the date(s) of the hazard assessment..." and identification of the document as a JHA certification. In other words, If you haven't done JHAs, you'd better have a darn good reason for not doing them, and if you have done any JHAs, they had better be documented.

Selecting the Job

The first thing to do is to determine which job or jobs need hazard analysis, and in what order. Look at your OSHA-200 log: you can prioritize based on severity of injury or case rates. Be sure to check out those "close calls" and "near misses" that may not have resulted in injury, but were reported in safety meetings. Also, you should look at any new processes or changes in process or procedure that could have resulted in new hazards to workers.

Conducting the Analysis

Once you have selected the job to analyze for hazards, it is important to talk to the affected employee(s) first- explain the process involved with JHA, and be sure to identify the benefits to that employee from a safety standpoint. You will want the employee's "buy in" to your project, and you will want to avoid any appearance of conducting a time-study or similar critical evaluation of the worker's performance. The employee's cooperation is crucial to your success!

Start by taking a look around the workplace- check for obvious hazardous conditions and make a note of any observed. Also, be sure to ask questions. For example, has anyone complained of strong odors, or work-related symptoms of health problems? You should also determine if company safety procedures are being followed in the workplace under study, or if they are even established. Additional questions needing to be answered are:

- Is anyone using PPE? What and why?
- Is work area ventilation adequate?
- Are emergency exits clearly marked?
- Do workers have adequate training?
- Has any workplace atmospheric or other hazard testing been conducted?
- Are there any obvious ergonomics issues?

Photographs may be helpful to jog your memory while compiling your report. Try to take as many pictures of the process and the work environment as possible. During the JHA you should also be developing a detailed checklist – many examples are available from OSHA guidance documents. You should break down the job into individual tasks, and then examine each task to determine the potential hazard(s) involved in each step of the process.

It is of primary importance to determine if the worker is wearing correct PPE for the job hazards involved. Additionally, it is very important to determine:

- If hazardous operations are adequately guarded,
- If Lockout/Tagout procedures are used for machine maintenance,
- What the worker's position is relative to the machine he/she is operating,
- If any repetitive motion hazards are involved,
- If any excessive noise hazards seem to be present, and
- The possible presence of any chemical/environmental hazards.

Selecting PPE

First, you should ask yourself: *is there a safer way to do it?* If hazards can't be "engineered-out", then protective equipment is needed for the workers involved. Don't guess – prescribe PPE based on known facts (hazard characteristics). This may involve additional testing and/or characterization. If your JHA has determined that PPE is required, then the employees using it must be trained in how to use their PPE properly. This training should also be documented.

The following is a photo from an actual auto parts factory. What are the potential hazards posed to the worker by this spray-painting operation? Notice the rack of castings on the left, and the pile on the right. What happens if he drops a casting on his foot? Is he wearing safety shoes with metatarsal guards? Also, he's not wearing a respirator. The paint is water-based, but it may contain toxic components. Is the airflow into the hood adequate? Where is the exhaust air going? What are some other hazards illustrated by the photo?



Reviewing / Updating the JHA

If an injury or illness occurs, something may have been overlooked in the JHA or a new hazard may have been introduced. Time for a new JHA! A good JHA can be used to instruct new employees on job-specific hazards. Any new procedures resulting from a revised JHA must be communicated to the employees along with training. Always be sure to document the training!

Process Safety Management

The OSHA PSM Standard (29 CFR 1910.119) is a complex regulation covering processes having highly hazardous chemicals. The Standard requires each applicable process to have a Process Hazard Analysis. A PHA is an organized and systematic effort to identify and analyze the significance of potential hazards associated with the processing or handling of highly hazardous chemicals. A PHA provides information to assist employers and employees in making decisions for improving safety and reducing the consequences of unwanted or unplanned releases of hazardous chemicals. Elements of the Process Hazard Analysis can be used to refine/upgrade a JHA. For example, under PSM requirements, a review team prepares "what-if" checklist for the entire process. Additional PSM study methods include the Hazard and Operability Study (HAZOP), Failure Mode & Effects Analysis (FMEA), and Fault Tree Analysis.

Misc. Considerations

Remember – things aren't always what they seem to be... it pays to be thorough in any investigation! Before you begin the JHA, (or any other workplace investigation, for that matter), it is essential to have management understanding and support. In a union shop, for example, be sure to make your plans known to the Local Committee to prevent arousing suspicion concerning your activities. You also may need resources for specialized work, such as workplace air sampling or noise analysis, which should be done by a trained Industrial Hygienist. In addition to qualified consultants, other (Internet) resources include:

www.osha.gov, www.cdc.gov/niosh/homepage.html, www.nfpa.org/, www.crossroads.nsc.org/, and www.acgih.org/.