

Chapter 33 – Job Hazard Analysis

33.1 Purpose

Every job or task that an employee performs exposes that employee to potential hazards that could result in accidents, injuries, or illnesses. Employees can reduce the potential for an accident, injury, or illness by eliminating or minimizing their exposure to these potential hazards.

The purpose of the GRC Job Hazard Analysis (JHA) process is to help employees and supervisors identify the hazards associated with Center activities and tasks, assess the risk associated with these hazards, and control that risk to an acceptable level.

The overall goals are to prevent injuries and illnesses, reduce property damage, supplement existing safety requirements, and enhance employee training on new, existing, and modified tasks.

33.2 Scope

The GRC Job Hazard Analysis process applies to any Center work activity or task that could potentially cause an accident, injury or illness. A JHA should be developed for any work activity and task that:

- Has resulted in multiple close calls, accidents, injuries, or illnesses
- Has the potential to cause severe or disabling injuries or illness, even if there has previously been no accident, injury, or illness
- Could lead to severe accident or injury from one simple human error
- Involves hazardous materials
- Involves hazardous energy sources
- Involves the use of personal protective equipment (PPE)
- Is new or has undergone changes in the process or procedures
- Is complex enough to require written instructions

33.3 Authority

- Glenn Safety Manual, Chapter 1 - Safety Management
- Section 5 (a)(1) of the OSHA General Duty Clause

33.4 List of Acronyms

CPAR	Corrective and Preventive Action Reporting
GRC	Glenn Research Center
SB	Safety Branch
JHA	Job Hazard Analysis
OSHA	Occupation Safety and Health Administration
PPE	Personal Protective Equipment

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33.5 Responsibilities

33.5.1 Supervisors

GRC supervisors (including contractors) are responsible for:

- Identifying and prioritizing activities and tasks within their area of responsibility for which JHAs should be developed.
- Developing a JHA, with the participation of affected employees, for each activity or task.
- Annually reviewing and/or updating applicable JHAs with affected employees.
- Submitting new and/or revised JHAs to the Safety Branch.
- Completing general JHA training.
- Ensuring that the appropriate people in the organization receive general JHA training.
- Providing task-specific JHA training to the appropriate people in the organization.
- Maintaining training records.
- Revising existing/approved JHAs should any changes occur in the 8-10 basic steps, hazards or hazard controls.
- Reviewing pertinent JHAs after an incident or close call is reported to assure hazard identification and controls are adequate.
- Evaluating the need for a JHA (where none exists) if an incident or close call is reported.
- Continually ensure that hazard controls documented in the JHA's are functional and being used properly.

33.5.2 Employees

GRC employees are responsible for:

- Participating in the development and maintenance of a JHA
- Completing general and/or task-specific JHA training
- Adherence to JHA documented controls
- Be vigilant of potential hazards not identified in the JHA and notify supervisor of these.

33.5.3 Safety Branch (SB)

The Safety Branch is responsible for:

- Assisting GRC organizations with JHA development
- Reviewing and accepting each JHA
- Assigning a unique identification number to each JHA in the Center repository
- Developing and maintaining a Center repository for all JHAs
- Providing general JHA training

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- Auditing the GRC Job Hazard Analysis process every three years

33.5.4 Environmental Management Branch (EMB)

The Glenn Environmental Management Branch is responsible for assisting GRC organizations with industrial hygiene issues that arise during the JHA process.

33.6 Requirements

33.6.1 JHA Process

- a. Employee Participation - The supervisor should involve employees that work in the area or are familiar with the task being assessed with the JHA process. Employees understand the activities and tasks they perform and are essential in identifying potential hazards. They are also helpful in identifying control measures to minimize or eliminate these hazards.
- b. Preliminary Job Review - The supervisor shall review the work tasks performed by the organization to determine if any meet the criteria listed in Section 33.2. If any of the criteria is met, a JHA shall be developed for that task. The supervisor should check the Center JHA repository to determine if a JHA already exists (or a JHA template exists) that could be used as is or as a baseline for a new JHA.
- c. Task Observation or Review - The supervisor and employees shall observe the work task to understand how it is performed. Sometimes it is helpful to photograph or videotape the task. If the task does not yet exist, the supervisor and employees shall at least discuss the work task to determine how it might be performed.
- d. Documentation of Basic Steps - After observing or reviewing the task, the supervisor and employees shall identify approximately 8-10 basic steps. Include enough information to evaluate the hazards associated with each step without getting overly detailed. The more people who review the task and the basic steps the more complete the evaluation will be.
- e. Hazard Identification and Evaluation - The supervisor and employees shall review each step and identify potential hazards, both unsafe acts and unsafe conditions. A list of common hazards is available in Appendix A of this Chapter and in OSHA Publication 3071, "Job Hazard Analysis". **Note:** The focus of the JHA process is on identifying unsafe acts and conditions and controlling them to prevent or minimize accidents, injuries, illness, or property damage. This evaluation should not overly criticize the individual performing the task. During this exercise, ask questions like:
 - What can go wrong?
 - What are the consequences?
 - How could it happen?
 - What are other contributing factors?
 - How likely is it that the hazard will occur?
 - What control measures, if any, are currently in place?

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- f. Hazard Controls - Once the hazards for each step are identified, the supervisor and employees shall identify existing or potential control measures that will eliminate or minimize the hazards. Control measures can include engineering controls, administrative controls, and/or personal protective equipment, in this order of preference. Examples of such control measures are available in Appendix B of this Chapter and in OSHA Publication 3071, "Job Hazard Analysis".
- g. Review and Submit JHA - The supervisor shall review the final JHA with the affected employees in the organization. The supervisor shall submit the final JHA to the Safety Branch for review and approval.
- h. Enter JHA in Center Repository - The SB shall review the submitted JHA and resolve any concerns with the submitting organization. Once all concerns are resolved, the SB shall add the approved JHA to the Center repository. This repository can be accessed through the SB web page.

33.6.2 JHA Format and Content

There is no specified format for a JHA; however, it shall contain the following information as a minimum.

- Job Title
- Job Description
- Job Location (building, room, area)
- Analyst(s)
- Organizational Code
- Signature of Organization's Supervisor
- Date of Supervisor's Signature
- For each Basic Step
 - Description of Step
 - Description of Hazards
 - Hazard Controls

Approved JHAs can be found in the Center JHA Repository located on the SB web site (http://gso.grc.nasa.gov/programs/hazard_analysis/jha.asp). This site also contains completed (unapproved) templates for several other general and/or specific tasks which may be encountered here at GRC.

A blank JHA template (C-82) is provided in GRC Electronic Forms and is the preferred format here at GRC.

33.6.3 Change Control

Should any changes occur which involve the 8-10 basic steps in an approved JHA; the supervisor shall update that JHA in accordance with 33.6.1 of this Chapter.

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In addition, the responsible supervisor shall conduct an annual review of work tasks and existing JHAs to determine if a new JHA is needed or if an existing JHA needs to be revised.

The supervisor shall review a JHA if a task-related close call, accident, injury, or illness occurs. The JHA shall be revised appropriately based on the results of the review.

33.6.4 Programmatic audits

The SB shall conduct a programmatic audit every three years to review the effectiveness of the JHA process and determine if there are any areas needing improvement. Audit results shall be reported to the SB Chief and the SHEB. Corrective and/or preventive actions shall be tracked in the CPAR System.

33.7 Training

There are two types of training associated with the JHA process: general and task-specific. Each organization shall maintain its own training records.

33.7.1 General JHA Training

Anyone who participates in JHA development, review, approval, or maintenance shall complete general JHA training prior to participation. General JHA training will cover the contents of this Chapter and how to develop a JHA. Refer to the Organization Development and Training Office (OD&T) website for additional information on this SB sponsored training.

33.7.2 Task-Specific JHA Training

The supervisor shall provide task-specific JHA training to each employee before the employee performs that task. Task-specific JHA training will cover the contents of the task-specific JHA. Refresher training shall be provided when the JHA is significantly revised.

33.8 References

33.8.1 OSHA Publication 3071, "Job Hazard Analysis"

33.9 Appendices

33.9.1 Appendix A - Common Hazards

Below is a list of common workplace hazards. Note: This is not an inclusive list.

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- Caught In, On, or Between
- Chemical - toxic, flammable, combustible, corrosive, reactive
- Collision - struck by or against
- Contact with
- Electrical - shock, short circuit, fire, static, electrostatic discharge, loss of power
- Ergonomics - strain, human error, repetitive motion, perception
- Excavation - collapse, contact with underground structures / utilities
- Explosion - over pressurization
- Falls - to same level, to different level, slips / trips
- Fire - fuel, oxidizer, ignition source
- Kinetic Energy - linear, rotary
- Mechanical - vibration, failure, stored potential energy
- Noise - continuous, impact
- Pathological - disease, bacteria, microorganisms
- Radiation - ionizing, non-ionizing, electromagnetic, ultraviolet, infrared, visible
- Temperature Extreme - heat, heat stress, hypothermia, cold, cryogenics
- Weather - snow, rain, wind, ice, lightning, tornado, flood

33.9.2 Appendix B - Hazard Control Measures

The following are general hazard control measures. They are listed from most to least preferred. Note: This is not an inclusive list.

Engineering Controls

Eliminate or minimize the hazard through design

Enclose the hazard or the personnel

Isolate the hazard with guards, interlocks, and barriers

Administrative Controls

Written operating procedures, work permits, safe practices

Exposure limitations

Alarms, signs, and warnings

Buddy system

Training

Personal Protective Equipment

Respirators

Hearing protection

Gloves

Protective clothing

Safety glasses

Hardhats