

SECTION 3: OCCUPATIONAL SAFETY

References

1. Departmental Manual (DM), Part 485, Chapter 14.

Requirements

The Departmental Manual, Chapter 14 states:

1. "Each bureau will develop and manage a system by which major activities and individual jobs are analyzed as to:
 - a. The sequence of work.
 - b. The hazards associated with the sequence (actions).
 - c. The methods or safeguards to prevent, reduce and/or control the identified hazard(s)."
2. "Each bureau will require that JHAs are properly used to prevent unnecessary exposure to job-related hazards."
3. "When work is performed by others, such as contractors, the contracting officer will determine that the person in charge of the work develops appropriate JHAs for the work to be performed. This information will be provided to the contracting officer or contracting officer representative as part of the accident prevention plan. It will be approved/accepted by the contracting officer/contracting officer representative prior to permitting the contractor to proceed with the work."

Procedures

1. Job Hazard Analysis (JHA) is a multi-step process designed to study and analyze a job. It breaks down a job into steps, which provide a means of eliminating associated hazards. JHAs result in a detailed written procedure for safely completing a particular job.
2. A successful JHA program will have several critical components.
 - a. Management Support. Support means that time will be allocated for training to explain the program and for employees and supervisors to complete and record the form.
 - b. Supervisor and Employee Training. JHAs require detailed training of supervisors and employees. Employees will be asked to provide feedback and on-the-job information relating to tasks they perform regularly.
 - c. Written Program. The written program should define the methods and forms to be used. It should include basic JHA information, benefits, assignments,

necessary forms and guidance on how to use them, recommended job selections, and management control and monitoring.

- d. Management Review. One individual needs to be assigned to oversee the program. This person should track the process and review rough drafts and completed JHAs for accuracy and quality.
3. Selecting the Job. Management should use a priority system to select jobs for analysis. This process should be based on past injury reports and employee feedback as well as factors such as:
 - a. Jobs that have frequently produced injuries or illnesses.
 - b. Jobs that are “high risk” and have the potential to cause injuries or illnesses.
 - c. Jobs that involve new equipment or procedures.
 - d. Jobs that have produced “near misses” among workers.
 4. Identifying High-Risk Jobs. The following system can help supervisors and employees identify “high-risk” jobs. To do, this we need to understand the “probability” of an accident and what the “severity” of the injury or illness might be.
 - a. Probability is defined as: the chance that a given event will occur. The probability rating is:
 - Low – If the factors considered indicate it would be unlikely that an accident could occur;
 - Medium – If the factors considered indicate it would be likely that an accident could occur; or
 - High – If the factors considered indicate it would be very likely that an accident could occur.
 - b. Severity is defined as: the degree of injury or illness, which is reasonably predictable.

The severity rating is: first-aid case, serious injury/illness or fatality.

Probability and Severity factors can be evaluated based on a simple “decisionmaking matrix” (Example 1). A matrix lets you chart a value for two factors, such as probability and severity, and rate the combined relationship. The higher the number, the greater is the risk.

EXAMPLE 1			
	First aid	Serious injury/illness	Fatality
Low	1	2	3
Medium	2	4	6
High	3	6	9

5. Methods to complete a JHA.

Three methods are commonly used to develop a JHA.

- a. One-on-one observation. A supervisor selects a worker who has a good knowledge of the job and is cooperative in answering questions to participate. The worker is observed completing the job, and both the worker(s) and the supervisor participate in the analysis process. This is the best method to use in developing a JHA, but it is not always possible.
- b. Group discussion method. Instead of actually watching the job, a group of supervisors and employees collectively analyze a job in a classroom setting. All involved must be familiar with the selected job in order to offer comments and agree with the established procedure. This is the second-best method to use in developing JHA.
- c. Recall and check process. Here, a supervisor or employee recalls job steps and hazards and then asks others familiar with the job if the steps and procedures are correct.

6. Completing the JHA form.

The JHA form to be used (see JHA Form 1) has three columns: Sequence of Job Steps, Potential Hazards/Injury Sources and Safe Action or Procedure. These columns should be completed in the following order:

- a. Sequence of Job Steps. The supervisor should ask the question, "What is the first thing you do when you start the job?" The next question should be, "What do you do next?" and so on until the job is completed. Each step can combine a variety of actions that are necessary to complete that step. Most JHAs contain 6 to 10 steps, and the information in this section is deliberately kept brief. Identify each step with a number that will be carried across the form to the other columns (see JHA Form 2, page 1).
- b. Identifying potential hazards. For each step, two types of information need to be recorded in the middle column – the actual hazard itself and the injury source. Remember, the hazard alone does not cause the injury. The injury source helps to identify the action that causes the injury. Keep words to a minimum. Identify the injury source by the two initials, and then identify the hazard (see JHA Form 2).
- c. Injury Sources.
 - **Struck-by** (SB): A person is forcefully struck by an object. The force of contact is provided by the object.
 - **Struck-against** (SA): A person forcefully strikes an object. The person provides the force or energy.

- **Contact-by** (CBY): Contact by a substance or material that, by its very nature, is harmful and causes injury.
 - **Contact-with** (CW): A person comes in contact with a harmful substance or material. The person initiates the contact.
 - **Caught-on** (CO): A person or part of his/her clothing or equipment is caught on an object that is either moving or stationary. This may cause the person to lose his/her balance and fall, be pulled into a machine or suffer some other harm.
 - **Caught-in** (CI): A person or part of him/her is trapped or otherwise caught in an opening or enclosure.
 - **Caught-between** (CB): A person is crushed, pinched or otherwise caught between a moving and a stationary object or between two moving objects.
 - **Fall-to-surface** (FS): A person slips or trips and falls to the surface he/she is standing or walking on.
 - **Fall-to-below** (FB): A person slips or trips and falls to a level below the one he/she was walking or standing on.
 - **Overexertion** (O): A person overextends or strains himself/herself while performing work.
 - **Bodily reaction** (BR): Caused solely from stress imposed by free movement of the body or assumption of a strained or unnatural body position.
 - **Overexposure** (E): Over a period of time, a person is exposed to harmful energy (noise, heat), lack of energy (cold) or substances (toxic chemicals/atmospheres).
- d. Safe Actions or Procedures. The Safe Action or Procedure column combines the basic steps and potential hazards into a correct safe working procedure. The entire correct job procedure and the method to avoid injury must always be included (see JHA Form 2). Once a rough-draft JHA has been completed, the JHA should be reviewed by someone who understands the quality needed in completed JHAs. In the early stages of a JHA program, many documents will likely be returned. However, the more one works with JHA, the better the quality of the finished product.
7. The full and correct use of the JHA program will likely lead to the discovery of many additional unsafe conditions and behaviors in the workplace. Management needs to expect this and be prepared to take the following actions.

- a. Anticipate an increase in requests for maintenance actions to correct unsafe conditions.
 - b. Correct any condition that could cause injury or may violate a regulation or standard as soon as it is discovered.
 - c. Provide additional training for supervisors and/or workers so they may perform the job as required in the JHA.
8. JHAs should be modified as needed. These documents should be regularly reviewed, corrected and updated by the supervisor, workers and/or management.
 9. If an accident or injury occurs on a specific job, the JHA should be reviewed immediately to determine whether changes are needed in the job procedure. If the accident results from failure to follow JHA procedures, the facts should be discussed with all those who perform the job.

JOB HAZARD ANALYSIS – FORM 1.1			
JOB HAZARD ANALYSIS (JHA)		Date:	New JHA/Revised JHA
Park Unit:	Division:	Branch:	Location:
JOB TITLE:		JHA Number:	Page _____ of _____
Job Performed By:	Analysis By:	Supervisor:	Approved By:
Required Standards and General Notes:			
Required Personal Protective Equipment:			
Tools and Equipment:			
Sequence of Job Steps		Potential Hazards/Injury Sources	Safe Action or Procedure

Injury Source for the middle column: SB= Struck-By, SA = Struck-Against, CBY = Contacted-By, CI = Caught-In, CB = Caught-Between, CO = Caught On, FB = Fall-to-Below, CW = Contacted-With, O = Overexertion or Repetitive Motion, FS = Fall-to-Surface, BR = Bodily reaction, E = Exposure to Chemical, Noise, etc.

JOB HAZARD ANALYSIS – FORM 1.2

JHA – CONTINUATION SHEET

JHA Number: _____

Page _____ of _____

Sequence of Job Steps	Potential Hazards/Injury Sources	Safe Action or Procedure

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JOB HAZARD ANALYSIS – FORM 2.1			
JOB HAZARD ANALYSIS (JHA)		Date: February 28, 2003	New JHA Revised JHA
Park Unit: Best National Park	Division: Maintenance Division	Branch: Auto Shop	Location: Headquarters area
JOB TITLE: Changing flat tire on 2000 Dodge Durango		JHA Number: 1	Page ___1___ of ___2___
Job Performed By: Motor Vehicle Operator	Analysis By: Safety Committee	Supervisor: Auto Shop Foreman	Approved By: Auto Shop Foreman
Required Standards and General Notes:	Read the owners manual pages 166 to 172. Study diagram and instructions on the bottom of the cover for the jack and tool storage area showing proper jack placement and the way to use the jack extension and handle.		
Required Personal Protective Equipment:	(Summer conditions) Gloves and coveralls		
Tools and Equipment:	(Summer conditions) Spare tire, jack, jack handle and extension, lug wrench, emergency markers		
Sequence of Job Steps	Potential Hazards/Injury Sources	Safe Action or Procedure	
1. Parking car	1. SB – worker struck by passing car	1. Park car as far from the edge of roadway as possible. Park vehicle on a firm level surface. Turn on flashers. Set the parking brake and place the gear selector in PARK. Set out emergency markers. Chock both the front and rear of the tire diagonally opposite the jacking position.	
2. Getting equipment	2. none	2. The jack and the tire changing tools are stowed in the floor compartment behind the rear seat, just forward of the lift gate opening. Jack usage instructions are shown on a label mounted on the underside of the cover. Put on gloves and coveralls.	
3. Getting the spare tire	3. CI – fingers caught between car body & winch knob. O – while operating winch	3. Use the jack wrench extension on the winch nut to lower the spare tire. Turn the wrench in a counterclockwise direction to lower the tire. Continue to turn the wrench until the spare tire is on the ground and can be pulled out from under the car.	
4. Properly place jack and remove wheel cover	4. CB – fingers can be caught between the wheel and the spade end of the wheel wrench O – force needed to loosen wheel nuts	4. Keep the fingers and hands clear of the pinch points between the tire and the spade end of the wheel wrench when prying off the wheel cover. Using the wheel wrench, loosen, but do not remove, the wheel nuts by turning them counterclockwise one turn while the wheel is still on the ground. Always place jack on a firm level surface. When changing a front tire, place the jack under the frame rail as close as possible behind the tire. When changing a rear tire, place the jack under the axle as close as possible to the shock bracket.	

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Job Performed By: Motor Vehicle Operator	Analysis By: Safety Committee	Supervisor: Auto Shop Foreman	Approved By: Auto Shop Foreman
Required Standards and General Notes:	Read the owners manual pages 166 to 172. Study diagram and instructions on the bottom of the cover for the jack and tool storage area showing proper jack placement and the way to use the jack extension and handle.		
Required Personal Protective Equipment:	(Summer conditions) Gloves and coveralls		
Tools and Equipment:	(Summer conditions) Spare tire, jack, jack handle and extension, lug wrench, emergency markers		
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