TOOLBOX TALK

MARINER SAFETY RESEARCH INITIATIVE

Job Safety Analysis (JSA)

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INTRODUCTION

Nearly every task we attempt has associated risks or hazards. In an attempt to minimize these risks most individuals make a conscious effort to be aware of situations around them that may cause harm.

Job safety analysis (JSA)

Job safety analyses focus on the relationship between a worker, the task to be performed, the work environment, and the equipment and tools related to the task. The JSA process may seem simple but the benefits of performing it correctly are exponential, such as lowering the number of injuries or incidents that may occur. In order to correctly perform a JSA the following three steps must be completed.

• Identify the steps needed to complete the task

• Pinpoint possible hazards that may occur in each step

• Eliminate or reduce the severity of the hazards that may occur

Actual Near Miss

A worker was grinding on deck wearing most of the recommended PPE except for the proper eye protection. If the worker had completed a JSA prior to performing the task, he would have known that eye protection was recommended as a control against eye hazards. Once a JSA is completed, individuals involved in the task must use all controls recommended to prevent injury, including all PPE that applies for that task.

JSA hazard types

When performing a JSA it is important to identify hazards that may cause harm or injury to individuals involved in the task. When identifying hazards the following list may help to pinpoint issues.

- Is there a danger of striking or being struck by an object?
- Is there a danger of being caught in, by, or between objects?
- Is there danger of slipping, tripping, or falling?
- Can pushing, pulling, lifting, bending or twisting cause strain?
- Is there danger of harm to eyes, hands, feet or other parts of a worker's body?

There are a variety of hazards that may be presented and can be categorized as: chemical, physical, biological, and ergonomic. The table below provides example hazards associated with each category.

Chemical Hazards	Physical Hazards
• Inhalation • Skin contact • Absorption • Injection • Ingestion	• Electrical • Fire/Explosion • Noise • Slips/falls • Struck by/against • Radiation • Thermal stress • Pinch points
Ergonomic Hazards	**Biological Hazards**
• Repetition • Forceful exertions • Awkward postures • Contact stress • Vibration • Work area design • Tool or equipment design	• Blood borne pathogens • Brucellosis • Building-related illness • Legionnaires' disease • Mold • Plant & insect poisons • Tuberculosis • Water (grey & black) & waste water

When to perform a JSA

Job safety analyses can be performed on many different tasks in the workplace. It is important to give priority to the tasks that are considered to be of the highest importance or that present the greatest risks. Listed below is a priority order of how tasks should be considered for JSA.

- Jobs with the highest injury or illness rates
- Jobs with the potential to cause severe or disabling injuries or illnesses
- Jobs in which human error could lead to a severe accident or injury
- Jobs with new processes or procedures
- Complicated jobs that may require written instructions

How to perform a JSA

When performing a JSA consider the following list to identify potential hazards:

- Environmental conditions of the work area (e.g. wet, cluttered or icy)
- The task that you need to perform
- Other people and work being performed (e.g. people working overhead)
- Equipment in operation near you (e.g. noisy equipment, welding)
- What controls, if any, are in place for the possible hazards?

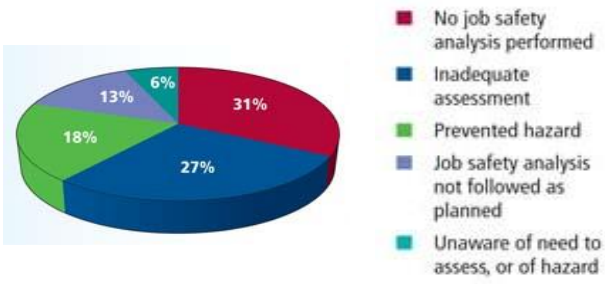
While performing the JSA keep the following list in mind.

- The steps involved and the order they will occur
- The actions that each task entails (e.g. load or steer)
- The PPE needed for each task

After the steps for the task have been identified and the hazards recognized, it is necessary to make recommendations or implement controls to reduce or eliminate the hazards. There are four main types of controls that can be put in place to mitigate hazards once they are identified; they are listed below and include examples.

1. Avoidance/substitution (e.g. postpone the survey)
2. Engineering (e.g. guards/barriers or alarms)
3. Administrative (e.g. procedures or signs)
4. Personal protective equipment (e.g. safety glasses or safety harnesses)

Employees should only participate in tasks containing hazards that may be mitigated with the use of PPE or controls that are already in place, not including the use of respirators. If a job is determined to be hazardous and PPE will not control the hazard, then employees are to postpone the task until the hazard can be controlled.



Actual Near Miss

A crewmember was on board a barge preparing to leave the port. As he let go of a mooring line, he stepped on a manhole cover that was not properly secured and fell forward. Upon further safety inspection, it was found that many of the manhole covers were unsecured. The crewmember should have performed a JSA himself prior to commencing the maneuvering job even though shore side personnel had already assured him that the barge was ready for sea.

Discussion

- Take five minutes before beginning or when re-starting a job to identify risk and mitigate hazards.
- Report and discuss any incidents pertaining to JSAs with your supervisor. Share examples from some of your own JSAs