

## Job Safety Analysis

Job Safety Analysis (JSA) is a foundation tool for developing a new operating procedure or evaluating an existing procedure. It is a tool for analyzing the potential or existing steps of a procedure, the existing or potential hazards (both behaviors and conditions), and the contingencies or countermeasures to eliminate or control the identified hazards. Once this analysis is completed, the a complete operating procedure is developed that includes the safety steps. The goal is to have only one document (operating procedure) to direct how a particular task is completed. The JSA feeds into this single operating procedure and does not replace this operating procedure.

The JSA process includes the identification of all the procedural steps, then the identification of the hazards, and finally the identification of the contingencies. The process is done with a team that includes, at a minimum, a person who knows and understands the work being analyzed; a person who doesn't know the work being analyzed; and someone who knows and understands the JSA technique.

An example of a JSA worksheet is listed below.

Procedure Step	Hazards	Contingencies/Control Measures

To use this worksheet, complete the following steps:

1. Observe the task or work being done.
2. Break down the task or work into steps. The procedure steps should be clear and understandable with enough detail so that the team can identify the hazards and contingencies/control measures.
3. For each step, list the hazards in that step. The hazards should include both behaviors and conditions; and both existing and potential hazards. Use the following list as a memory aid. These are example of hazards and types of accidents that can happen.
  - a. acceleration (going too slow or too fast);
  - b. toxic;
  - c. radiation;
  - d. ergonomic hazards (high frequency, high duration, high force, posture, point of operation, mechanical pressure, vibration, environmental exposure);
  - e. pressure (hydraulic or pneumatic);
  - f. mechanical;
  - g. flammability/fire;
  - h. biological;
  - i. workplace violence;
  - j. explosives;
  - k. electrical;
  - l. chemical reactions;
  - m. struck-by;
  - n. struck-against;
  - o. contact-by;
  - p. contact-with;
  - q. caught-in;
  - r. caught-by;
  - s. caught-between;
  - t. fall-to-surface;
  - u. fall-below;
  - v. over exertion;
  - w. bodily reaction;
  - x. over exposure.
4. List the contingencies and control measures for each identified hazard. The contingencies or recommendations should be developed in sequence, be specific, and should be reviewed by a

person knowledgeable about Company and Governmental requirements. Contingencies are alternate ways of doing the task step that avoid the hazard. Control measures are additional things done to compensate for the hazard. Control measure solutions should follow the Hierarchy of Control by implementing, in order:

- a. Engineering Controls. These include substitution of chemicals or equipment, isolation of the hazard, ventilation, and equipment modification. Engineering Controls focus on eliminating the hazard all together and focus on the source of the hazard.
- b. Administrative Controls. These include reducing a person's exposure to a hazard by limiting time exposed, changing work procedures, or improving cleanliness practices. Administrative Controls are heavily dependent upon the employee's compliance.
- c. Personal Protective Equipment. These include requiring protective equipment when Engineering and Administrative Controls cannot sufficiently reduce the exposure to a hazard. Personal Protective Equipment is almost always used in combination with one, or both, of the other types of controls.

Once the worksheet is completed, an operating procedure is developed using the appropriate steps from the JSA. Since JSA process also identifies steps needed (usually identified as a contingency), or steps that can be eliminated (also usually identified as a contingency), not every identified step will necessarily go into the final operating procedure.

Please see the next page for a printable JSA worksheet.

