

# Chapter 1

## Health Safety and Environment Programs

---

### 1.0 Safety Policy Statement

The objective of a Health, Safety and Environment Program is to prevent injuries, protect employee health, protect the environment, educate employees, and increase work productivity. Every HSE program should be based on a sound foundation. This foundation should be a clear and concise objective of the company's HSE policies. The basic objectives should be:

- A. The safety of employees and the public environment are of the utmost importance in all drilling/well-servicing operations.
- B. Safety takes precedence over expediency or shortcuts.
- C. Every attempt should be made to prevent the possibility of incident occurrence.
- D. Safety authority and accountability should be well defined. Once a policy is set and has been publicized so every employee is familiar with it, top management should delegate the authority through management levels down to each supervisor. The supervisor is responsible and accountable to see that each crewmember understands each procedure. Employees should follow all procedures and programs established by the employer. Safety is also the responsibility of all employees.

### 1.1 HSE Meetings

One of the most important parts of any company's Health Safety and Environment Program should be regular HSE meetings. Each of these meetings should be well planned and organized with each crew in advance. The format should include a presentation of past, present, and future rig operations. Pre-job meetings should be held for routine and non-routine operations. The meeting should provide suggestions, solutions and conclusions. There should be time allocated for participation from each member. Meetings should be documented, and all employees present should note their attendance. To assist in planning and documenting HSE meetings, IADC suggests:

- A. IADC Safety Meeting Topics (available from IADC Publications)
- B. IADC Safety Meeting Topic & Record Book (available from IADC Publications)
- C. IADC Weekly Safety Meeting Report Form (available from IADC Publications)
- D. IADC Drilling Rig Safety Inspection Checklist (available from IADC Publications)
- E. Information from equipment manufacturers
- F. Information from the well operator
- G. Recent company communications
- H. Recent incident investigations, their causes, and corrections

- I. Safety equipment operating procedures
- J. Employee suggestions
- K. Job Safety Analysis (JSA) Program (see section 1.4)
- L. IADC HSE Committee Safety Alerts (see <http://www.iadc.org/alerts.htm>)
- M. IADC Knowledge, Skills and Abilities
- N. Handover and Management of Change

## **1.2 Safety Inspections and Logbooks**

Regular inspections should be made to determine if the equipment is safe to operate. Although a supervisor or other designated company representative should perform inspections, all employees are responsible to report any unsafe conditions they observe. The rig should be inspected from every viewpoint. Unsafe conditions and acts should be reported to the supervisor. The IADC HSE Committee has developed a general rotary rig inspection form that is available from IADC Publications.

## **1.3 Health Safety and Environment Committee**

Companies should consider establishing Health, Safety and Environment committees. The purpose of a HSE committee should be to meet and discuss safe working conditions and procedures. Committee members should consist of key operating personnel and crewmembers. Topics covered should include:

- A. Injury incidents
- B. Equipment failures
- C. Near misses
- D. Damages
- E. Rig inspections
- F. Rig repairs and modifications
- G. Procedural Changes
- H. Environmental Incidents
- I. Management of Change

Minutes of the meeting and attendees should be recorded and made available to all personnel.

## **1.4 Job Safety Analysis**

- A. Training

The Rig Manager (Toolpusher/OIM) will have the primary responsibility for training and/or re-training rig crews in the following processes:

1. Job selection
2. Hazard identification
3. Safe job procedures

4. Documentation on the JSA form (sample form in Section 1.10)

The rig crews will become owners of the JSA process and incorporate it into all appropriate activities. The critical phase is education of employees in the purpose and importance of the JSA process.

#### B. Job Selection

The long-range objective of the JSA program should be to have a JSA for all jobs. However, it is important to set priorities for developing JSA's. In deciding which job to start with, here are some factors to consider:

1. Job incident frequency
2. Potential incident severity
3. Potential Hazard (injury to personnel, damage to equipment or environment)
4. Routine and non-routine jobs and new tasks
5. Hazard Identification

A hazard is a potential danger. The purpose of the JSA is to identify ALL hazards, both those produced by the environment or conditions, and those connected with job procedure. To identify hazards, these questions should be asked about each step:

1. Is there a danger of the employee being struck by, or making injurious contact with an object?
2. Can an employee(s) be caught in, by, or between objects?
3. Is there a potential for slip, trip or fall?
4. Could employees suffer strains from pushing, pulling, lifting, bending or twisting?
5. Is the environment hazardous to safety (gas, dust, fumes, chemicals, noise, heat, or cold)?
6. Is there a potential for unexpected pressure release or well control incident?
7. Is there a potential to contact electric current?
8. Is there an environmental risk?
9. Are hazards present from simultaneous operations?

#### D. Safe Job Procedure

From the listed job steps and hazard identification, employees should be able to decide what actions and/or procedures are necessary to eliminate or minimize the hazards that could lead to an accident or injury. Following are recommended actions or procedures to eliminate or control each identified hazard:

1. Engineer the hazard out
2. Provide guards or safety devices
3. Provide personal protective equipment
4. Provide job instruction, training, and signage

#### E. Documentation

Completed JSA's must be retained on the rig or job site to facilitate easy reference, review and revision.

#### F. Key Points and Considerations of the Job Safety Analysis

1. A Job Safety Analysis (JSA) is a method of studying jobs in order to make them safer.
  2. The person or persons who have primary responsibility for conducting or implementing the job or task should complete the JSA. This can be anyone: Roustabout, Floorhand, Crane Operator, Driller, Toolpusher, etc. JSA's should be developed as a group (input from entire group).
  3. All personnel involved in implementing the specific job or task should be present when a JSA is filled out. The best people to help make a JSA are the people that are experienced, capable and willing to share ideas.
  4. JSA's should be kept in a binder to facilitate easy reference and review. JSA's must be available to all crewmembers.
  5. JSA's are excellent team building and training tools. Therefore, ALL personnel including service personnel should participate.
  6. All supervisors (Toolpusher, Driller, Crane Operator, etc.) should take the lead in JSA development, training and implementation.
- G. Instructions for Completing the Job Safety Analysis Form (sample form in Section 1.10)
1. Job Safety Analysis (JSA) is an important incident prevention tool that works by identifying hazards and eliminating or minimizing them before the job is performed and before they have a chance to become incidents. Use JSA:
    - a. For Job clarification
    - b. For Hazard awareness
    - c. As a tool to determine and remove hazards
    - d. As a guide for all employees
    - e. As a refresher on non-routine jobs
    - f. As an incident investigation tool
    - g. For informing employees of specific job hazards and protective measures
  2. Set priorities for doing JSA's:
    - a. Jobs that have a history of frequent incidents
    - b. Jobs that have produced disabling injuries
    - c. Jobs with high potential for disabling injury or death
    - d. New jobs with no accident history
  3. Select a job to be analyzed. Before filling out the form, consider the following:
    - a. The purpose of the job – What has to be done? Who has to do it?
    - b. The activities involved – How is it done? When is it done? Where is it done?
    - c. If employees are not familiar with a particular job or operation interview an employee who is. In addition, observing an employee performing the job or “walking through” the operation step by step may give additional insight into potential hazards. One means to analyze a job is to make a videotape for review.
  4. Instructions for completing each of the three parts of a Job Safety Analysis include:

a. Sequence of Basic Job Steps

- 1) Examining a specific job by breaking it down into a series of steps or tasks will enable you to discover potential hazards that employees may encounter.
- 2) Each job or operation will consist of a set of steps or tasks. For example, the job might be: Using the Wire Line Cutter. To determine where a step will begin or end, look for a change of activity, change in direction, or change in movement.
- 3) Gathering the tools necessary for the job is one step. The next step might be to tape or seize the line. Another step may be to place the line cutter on the line. The next step may be to cut the line. The final step might be return the tools to their proper storage.
- 4) Be sure to list ALL the steps needed to perform the job. Some steps may not be performed each time; an example could be checking the fluid level in the line cutter. However, if that step is generally part of the job, it should be listed.

b. Potential Hazards

A hazard is a potential danger. The purpose of the Job Safety Analysis is to identify ALL hazards—both those produced by the environment or conditions, and those connected with job procedure. Close observation and knowledge of the job is important. Examine each step carefully to find and identify hazards (the actions, conditions, and possibilities that could lead to an incident). Compiling an accurate and complete list of potential hazards will allow you to develop the recommended safe job procedures needed to prevent incidents. To identify hazards, ask yourself these questions about each step:

- 1) Is there a danger of the employee being struck by, or making injurious contact with an object?
- 2) Can an employee(s) be caught in, by, or between objects?
- 3) Is there a potential for slip, trip or fall?
- 4) Could employees suffer strains from pushing, pulling, lifting, bending or twisting?
- 5) Is the environment hazardous to safety (gas, dust, fumes, chemicals, noise, heat, or cold)?
- 6) Is there a potential for unexpected pressure release, or well control incident?
- 7) Is there a potential to contact electric current?
- 8) Is there an environmental risk?
- 9) Are hazards present from simultaneous operations?

c. Recommended Action or Procedure

- 1) Using the first two columns as a guide, decide what actions, safety equipment, or procedures necessary to eliminate or minimize the hazards that could lead to an incident, injury, occupational illness or environmental event.
- 2) Begin by trying to:
  - i. Engineer the hazard out
  - ii. Provide guards, safety devices, etc.
  - iii. Provide personal protective equipment
  - iv. Provide job training