

## INTRODUCTION

### 1. What is a Job Safety Analysis?

- Identifies hazards associated with each step of any job or task that has the potential to cause serious injury
- Determines how to control the hazards
- Produces a written tool that can be used to train other staff

### 2. Who should conduct a JSA?

Supervisors and staff who actually use the particular piece of equipment should work together to develop the JSA. Supervisors are responsible for writing the JSA, keeping it on file in the unit, training affected staff, and enforcing work rules. Staff who actually use the equipment should participate in the analysis, because they usually are the most knowledgeable about the hazards and have direct control over them.

### 3. What do the terms 'hazard' and 'risk' mean?

A Job Safety Analysis is the systematic identification of potential hazards in the work place by personnel as a first step to controlling the possible risks involved.

A hazard is anything that has the potential to cause harm.

A risk is the likelihood of someone being exposed to that hazard and harmed as a result.

Job Safety Analysis should assess the risk that may be present in all work activities, and may identify particular areas for more detailed 'specific' assessments.

### 4. Preparing for Work

JSAs are an important part of preparing for each job.

JSAs should be completed before work begins. Each worker involved with the job should know and understand the JSAs for the work they are doing.

### 5. Taking it step-by-step

Completing a JSA does not have to be a complicated process. It can be as simple as writing a few dot points under each of the headings in a blank JSA form. Taking it one step at a time will make the whole process easier. It is best done with the people who usually carry out the tasks because they know the job well. An example of a JSA report for welding a mild steel cement lined pipe is presented in Appendix 1.

The following hazards should be considered when completing a JSA:

- The existing or potential safety and health hazards associated with each step
- Impact with a falling or flying object
- Penetration of sharp objects
- Caught in or between a stationary/moving object
- Falls from an elevated work platform, ladders or stairs
- Excessive lifting, twisting, pushing, pulling, reaching, or bending
- Exposure to vibrating power tools, excessive noise, cold or heat, or harmful gases, vapours, liquids, fumes, or dusts
- Repetitive motion
- Electrical hazard
- Light (optical) radiation (ie. welding operations, laser surveying, etc)
- Water (potential for drowning or fungal infections caused by wetness)

## 6. How Job Safety Analysis is Performed

There are eight steps to performing a satisfactory Job Safety Analysis

1. Focus for assessment	A risk assessment is not a theoretical exercise. However, much work can be done on paper from the knowledge you, your employees or their representatives have of the workplace. A tour of the workplace will be needed to confirm, amend or add detail to your initial views.
2. Identify activities	To identify all potential safety hazards in the workplace, you should first look at all activities that are carried out. Don't just look at routine daily operations – consider all possible activities, including occasional maintenance and visits to the workplace by third parties.
3. Identify hazards	Make a list of all hazards that are likely to occur for each activity. Ignore the trivial and concentrate on significant hazards. Consider hazards that may not normally be associated with particular activities eg. fire.
4. Who is at risk	Decide who (eg. employees, contractors, visitors, etc) might be in danger in the workplace, and note their location in relation to first aid resources and evacuation routes.
5. Evaluate risk	Evaluate the risks arising from the hazards and decide whether your existing safety control measures are adequate or whether more should be done to get rid of the hazard or to control the risks.
6. Review controls	Look at the existing control measures that you have in place for each identified risk and assess whether it is adequate and whether more could be done to improve their implementation. Consider whether new controls need to be introduced.
7. Record decisions	Produce a JSA report, recording your findings and details of the action you took as a result. Tell your employees about your findings by distributing or publishing your report.  Prepare an emergency plan. Inform, instruct and train employees in Health and Safety procedures, including first aid.
8. Review regularly	Keep the assessment under review and revise it when necessary. Any material change in processes, equipment or manpower should prompt you to consider the need for a new job safety analysis.

**APPENDIX 1. - EXAMPLE OF A JOB SAFETY ANALYSIS FOR THE WATER INDUSTRY**

<b>Job Title:</b>		<b>Description of Job:</b> Welding of Mild Steel Cement Lined Pipe (MSCL)	
<b>Date Job Analysis:</b>	<b>Time of Job Observation:</b>	<b>Department:</b>	
<b>JSA Team Members:</b>		<b>Proposed Working Parties:</b>	
<b>Relevant Legislation, Standards:</b>		<b>Sign off:</b>	

	<b>SEQUENCE OF JOB STEPS</b>	<b>RISK IDENTIFIED</b>	<b>CONTROL MEASURES</b>
1	Prior to commencing mobilisation to site	<ul style="list-style-type: none"> <li>• Unknown site hazards</li> <li>• Workers not understanding the requirements of the job</li> <li>• Specific site requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Client's site induction requirements</li> <li>• Discuss access to site with Client</li> <li>• Discuss likely hazards to be found on site</li> <li>• Receive clearance from Client to mobilise to site</li> <li>• Receive site map from Client indicating the following               <ol style="list-style-type: none"> <li>1. Access roads to the site</li> <li>2. Contact details for site manager</li> <li>3. Details of special PPE required for the site</li> <li>4. Type of &amp; No of vehicles permitted on the site</li> <li>5. Laydown area for equipment</li> </ol> </li> </ul>
2	Mobilise	<ul style="list-style-type: none"> <li>• Damage/ injury to personnel or asset</li> <li>• Manual handling</li> <li>• Snakes/insects bites</li> <li>• Dehydration</li> <li>• Sunburn</li> <li>• Trips &amp; slips</li> </ul>	<ul style="list-style-type: none"> <li>• Obtain Clearance to Work Permit if applicable</li> <li>• Use Client supplied laydown areas</li> <li>• Awareness of environment</li> <li>• Maintain adequate fluids</li> <li>• Use sunscreen &amp; personal protection</li> <li>• Clear area of trip hazards &amp; debris</li> <li>• Limit lowering of personnel equipment to 30 Kg</li> </ul>
3	Site Planning <b>PRIOR to work COMMENCING</b>	<ul style="list-style-type: none"> <li>• Unknown site hazards</li> <li>• Workers not understanding the requirements of the job</li> <li>• Specific site requirements</li> <li>• Works not isolated</li> <li>• Engulfment</li> </ul>	<ul style="list-style-type: none"> <li>• Induct workers to the site</li> <li>• Review the JSA prior to work commencing <b>EACH MORNING</b> or if a high risk activity as often as required</li> <li>• Ensure ALL identified permits and clearances are available and valid for the particular shift</li> <li>• Ensure correct PPE is worn and is in good condition</li> </ul>

4	Excavate trench (if applicable)	<ul style="list-style-type: none"> <li>• Collapse of trench walls</li> <li>• Dust</li> <li>• Other services</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure correct batter ratios used for the soil type &amp; depth</li> <li>• Use trench shoring and barriers as necessary</li> <li>• Use water to suppress dust</li> <li>• Wear appropriate P.P.E</li> <li>• Use an alert attendant as a spotter</li> </ul>
5	Access trench (if applicable)	<ul style="list-style-type: none"> <li>• Falling from height</li> <li>• Falling equipment &amp; debris</li> <li>• Slips</li> <li>• Electric shock</li> </ul>	<ul style="list-style-type: none"> <li>• Use ladders and walkways</li> <li>• Provide earth ramps if necessary</li> <li>• Clear all debris and equipment Min. 1 meter from edge of trench</li> <li>• Ensure trench walls are stable and safe</li> <li>• Bell holes to be suitable size and dry</li> <li>• Ensure welding machines have voltage reduction devices fitted when using machines for MMAW welding if required from a risk assessment.</li> <li>• Use dry duck boards if trench is wet</li> <li>• Wear rubber boots if trench is wet</li> <li>• Ensure a supply of dry welders gloves are on site</li> </ul>
6	Cutting pipe	<ul style="list-style-type: none"> <li>• Eye injuries</li> <li>• Burns</li> <li>• Electric shock</li> <li>• Fire</li> </ul>	<ul style="list-style-type: none"> <li>• Check oxy/acetylene equipment for damage (hoses, handpiece and flashback arresters) for leakage prior to entering a confined space or trench</li> <li>• Wear appropriate P.P.E for oxy/acetylene cutting – gloves, cutting goggles or appropriate shield. Note – sunglasses MUST NOT be worn</li> <li>• Use dry gloves and ensure all cables and hoses are in good condition</li> <li>• Use duckboards if required</li> <li>• Have fire extinguisher available</li> <li>• Ensure pipe is adequately supported for cutting (including discard section)</li> </ul>
7	Fit the weld band and pulling bolt	<ul style="list-style-type: none"> <li>• Hand injuries</li> <li>• Falling from pipe</li> </ul>	<ul style="list-style-type: none"> <li>• Wear gloves</li> <li>• Use ladders and keep top of pipe free of debris and sand</li> </ul>
8	Set the pipe/pipe fittings	<ul style="list-style-type: none"> <li>• Crush injuries</li> <li>• Dropping the pipe</li> <li>• Slips &amp; Trips</li> </ul>	<ul style="list-style-type: none"> <li>• Remove all unnecessary personnel from the area</li> <li>• Ensure personnel are clear of the moving pipe</li> <li>• Ensure dogman has good communication with the excavator driver</li> <li>• Only qualified and competent dogmen and excavator operators to be employed</li> <li>• Ensure all lifting equipment is in good order</li> <li>• Wear safety helmets and vests</li> </ul>
9	Tighten the weld band pulling bolts	<ul style="list-style-type: none"> <li>• Hand injuries</li> </ul>	<ul style="list-style-type: none"> <li>• Wear gloves</li> <li>• Use correct equipment – spanners</li> <li>• Ensure the pulling bolt is adequately welded or if a chain type is used the chain is in good order and correctly located.</li> </ul>

10	Weld joint, EXTERNAL	<ul style="list-style-type: none"> <li>• Eye injuries</li> <li>• Burns</li> <li>• Electric shock</li> <li>• Sun burn</li> <li>• Dehydration</li> </ul>	<ul style="list-style-type: none"> <li>• Check welding leads, handpieces, wire feeders etc for damage prior to using the equipment</li> <li>• For MMAW welding equipment <ol style="list-style-type: none"> <li>1. Ensure the Voltage Reduction Device (VRD) is fitted to the machine and is switched ON if required from a risk assessment</li> <li>2. Ensure there is NO welding electrode left in the handpiece whilst not welding.</li> <li>3. Check welding leads, handpieces, wire feeders etc for damage prior to using the equipment.</li> </ol> </li> <li>• Wear appropriate eye protection</li> <li>• Wear suitable clothing – in good condition</li> <li>• Ensure all PPE is in good condition and used at all times</li> <li>• Keep all equipment dry</li> <li>• Use duckboards if required</li> <li>• Use umbrella for shade</li> <li>• Maintain adequate fluids</li> <li>• Use sunscreen &amp; personal protection</li> <li>•</li> </ul>
11	Weld Joint INTERNAL	Conduct Formal Risk Assessment due to Confined Space	Develop from Risk Assessment
12	Pressure test joint	<ul style="list-style-type: none"> <li>• Eye injuries</li> </ul>	<ul style="list-style-type: none"> <li>• See pressure test procedure</li> <li>• Wear eye protection</li> <li>• Remove all unnecessary personnel from the area</li> </ul>
13	Weld up the test hole (if applicable)	<ul style="list-style-type: none"> <li>• Eye injuries</li> <li>• Burns</li> <li>• Electric shock</li> </ul>	<ul style="list-style-type: none"> <li>• Wear appropriate eye protection</li> <li>• Wear suitable clothing – in good condition</li> <li>• Keep all equipment dry</li> <li>• Use duckboards if required</li> </ul>
14	Demobilise	<ul style="list-style-type: none"> <li>• Manual handling</li> <li>• Cranage</li> <li>• Site condition</li> </ul>	<ul style="list-style-type: none"> <li>• Use client supplied laydown areas</li> <li>• Use correct lifting equipment, chains, slings etc</li> <li>• Limit lifting of personnel equipment to 30 Kg</li> <li>• Leave site in a clean &amp; tidy condition, in accordance with client direction</li> </ul>

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<b>NDNP TECHNOLOGY DIFFUSION ACTIVITY # 27</b>	 Welding Technology Institute of Australia ABN 69 003 696 526 <b>NATIONAL DIFFUSION NETWORKS PROJECT TECHNOLOGY QUESTIONNAIRE Pressure Equipment Industry Group “JOB SAFETY ANALYSIS (JSA) FOR THE WATER INDUSTRY”</b>	<b>Document No:</b> 9.4.3-QR-001
		<b>Revision No:</b> Rev 0
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As part of the WTIA National Diffusion Networks Project the Water Industry Sector has identified the need for guidelines on producing a Job Safety Analysis (JSA) for welding activities on pipelines. The WTIA has produced a guidance note “JSA for the Water Industry” to address this need. As a valued technology expert in this area we would like you to be part of the Technology Expert Group to review this note. Please complete this questionnaire so that we can gauge the success of meeting this need.

**Objective 1: Identify the need to produce a guide to JSA production**

Anecdotal evidence suggests that there is not a standard system in place in the Australian Water Industry for performing job safety analyses. How well does the document achieve provision of a standard approach?

poor  average  good  very good

Comments: \_\_\_\_\_

**Objective 2: Identify appropriate technology receptors in the Water Industry**

This document was written for Welders, Welding Coordinators, OH&S personnel and project engineers involved in the fabrication and maintenance of water pipelines and components. Are these people the appropriate individuals we should be targeting?

yes  no

What other types of companies and/or personnel do you suggest we target? \_\_\_\_\_

**Objective 3: Identify current best practice for performing Job Safety Analyses**

The document was written to reflect current best practice for the performing a job safety analysis. Do you envisage opportunities for the use of this practice in the industry?

yes  no

If yes, what and where, if no why not? \_\_\_\_\_

**Objective 4: Is the information provided clear, concise and accurate?**

yes  no

If not, why? \_\_\_\_\_

**Objective 5: Broad dissemination of technology to the Water Industry**

Please indicate how best to disseminate this information to the appropriate Water Industry Recipients

Free Website Download  Poster  Pocket Guide  Pamphlet

If poster, what size? A1  A2  A3  Laminated  What selling price? \$

If a pocket guide, what selling price? \$

Other format? \_\_\_\_\_

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**Objective 6: Continuous Improvement**

Please Identify areas where the document can be improved or return the document with your recommended additions/amendments. Alternatively, please use the area below to provide any additional comments.

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*Respondents Name:* \_\_\_\_\_ *Company:* \_\_\_\_\_ *Phone:* \_\_\_\_\_

*Fax:* \_\_\_\_\_ *Email:* \_\_\_\_\_ *Date:* \_\_\_\_\_

**Please Fax (02 9748 2858) or E-mail (j.baker@wtia.com.au) your response .**

**Your prompt response is appreciated.**

The WTIA has joined forces with industry and government to create a 3.5 million dollar Technology Support Centres Network. This network will assist industry to identify and exploit world's best technology and manufacturing methods to establish a vibrant Australian industry beyond 2006. Together we will be implementing a step by step process which will lead to ongoing viability and greater profitability for all concerned:



- (1) Determine your technological and manufacturing needs;
- (2) Identify world's best practice;
- (3) Draw upon the network to implement world's best practice at your site

