***SECTION 3*** *Framework for Health and Safety Management*

JOB SAFETY ANALYSIS PROCEDURE

PURPOSE

This procedure outlines the process to develop and complete a Job Safety Analysis (JSA) prior to starting a work task. JSA is a process where health and safety hazards associated with each step of a task are identified and control measures are developed, recorded and monitored.

REQUIREMENTS FOR DEVELOPING JOB SAFETY ANALYSIS

Job Safety Analysis (JSA) shall be developed and approved prior to commencing any job which:

 Will not be managed in accordance with a proven procedure or work instruction

 Could introduce hazards not normally present (for example, deep excavation adjacent to fence requiring repair)

 Could involve significant risk to workers performing the job, or in adjacent areas (for example, welding in an elevated area)

 Where the complexity of the job poses additional risks (for example, installation of a new piece of plant)

 Potential for severe injuries or illnesses: the consequences of an accident, hazardous condition, or exposure to harmful products are potentially severe

 Newly established jobs: due to lack of experience in these jobs, hazards may not be evident or anticipated

 Modified jobs: new hazards may be associated with changes in job procedures or tasks

 Infrequently performed jobs: workers may be at greater risk when undertaking non-routine jobs, and a JSA provides a structured means of reviewing hazards and controls

### SPECIFIC ACTIVITIES REQUIRING JOB SAFETY ANALYSIS

A JSA should be completed before any work involving the activities below is commenced:

 Working at Heights

 Confined Space Work

 Working in and Around Water

 Working with Mobile Plant or Equipment

 Working with Asbestos Containing Material

 Construction or Demolition Work

DEVELOPMENT OF JOB SAFETY ANALYSIS

### JSA TEAM

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The responsible person shall ensure that the team selected to develop the JSA includes include representatives from the

people performing the job, people who control the relevant work area(s) and people with specialist expertise in management of the hazards involved (e.g. the relevant Engineers). A person is

nominated as the JSA Team Leader, typically this may be the area supervisor, or team leader.

Where contractors are undertaking work, they will be required to complete JSA in accordance with this requirements and standards or this procedure. Contractors’ JSA shall be approved by responsible person prior to work commencing.

### 1.2.2 INFORMATION REQUIRED FOR JSA DEVELOPMENT

The responsible person shall ensure that relevant and applicable supporting documentation is available to the Job Safety Analysis Team, this information may include:

 A description of the overall job to be analysed.

 Where available, a detailed breakdown of the steps involved.

 A list of the people/workgroups involved, including identification of any people with specialist expertise required to complete the work.

 Layout drawings and/or photographs of the areas involved.

 Piping and Instrumentation Diagrams (P&ID), mechanical drawings, photographs and/or safe operating limits for all relevant sections/pieces of plant.

 MSDS for any hazardous substances or dangerous goods involved.

 A brief description of any incidents known to have occurred during the same or similar activities (including incidents on other company sites).

 Other relevant risk assessments performed previously (e.g. Plant risk assessment, Confined Space assessments, etc.)

### DEVELOPMENT OF JOB SAFETY ANALYSIS

The JSA Team reviews the information and any relevant codes of practice and standards for the job to be analysed. The JSA development commences with a detailed description of the activities to be analysed being recorded on the JSA worksheet, which is provided as an attachment to this procedure.

The JSA Team then analyses:

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 what steps/tasks will be performed to complete the job;

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| **KINETIC ENERGY** | |
|  | Impact from moving/falling objects |
|  | Impact from flying particles/projectiles |
|  | Impact from / against sharp objects |
|  | Crushing from moving equipment / tools |
|  | Damage / injury from incorrect or faulty tools |
|  | Entanglement with moving parts |
|  | Mechanical equipment failure or roll over |
|  | Control system failure |
|  | Collision of vehicles / mobile plant |
|  | Manual handling strain / over exertion |
|  | Repetitive strain / occupational overuse injury |
|  | Vibration injury / damage / complaint |
|  | Noise exposure / complaint |
| **POTENTIAL ENERGY** | |
|  | Sudden release of mechanical energy |
|  | Over pressure / low pressure damage |
|  | Structural collapse |
|  | Falling / slipping / tripping |
|  | Manual handling or repetitive strain |
|  | Entrapment / engulfment / cave-in |
| **THERMAL ENERGY** | |
|  | Fire and/or explosion |
|  | Contact with hot / cold surfaces |
|  | Overheating / freezing |
| **ELECTRICAL ENERGY** | |
|  | Electrocution |
|  | Static electricity discharge |
|  | Short circuit (over current) |
|  | Wiring failure / incorrect wiring |
|  | Electrical equipment failure |
| **CHEMICAL ENERGY** | |
|  | Exposure to hazardous substances  ~ skin absorption  ~ ingestion  ~ inhalation  Asphyxiation Chemical reaction  Chemical contamination  Release of flammable / combustible materials Release of environmentally hazardous substances Release of odours  Dust Exposure  Release / contact with asbestos / Synthetic Mineral Fibres Water damage  Inappropriate waste collection, storage or disposal |
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 for each step, what could go wrong and what could cause it to go wrong;

 how can the job be made safer;

 considering the identified hazards and control measures to be applied;

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 what is the residual level of risk associated with the job;

 are there any additional measures which could be practicably be applied to further reduce the risk;

 Is the risk level acceptable?

The JSA Team Leader ensures the job is broken down into logical steps for analysis, to the extent required to provide confidence that no significant hazards have been overlooked. The JSA Team considers the tasks, equipment and materials associated with each step and identifies any potential hazardous events which could occur. Identification of potential hazardous events also considers the potential impacts both to and from other activities being performed in the area / at the same time (e.g. people working in the area falling into an excavation).

#### JSA Prompters

The prompters below may be used to assist in the development of the JSA:

Could any potential hazardous events impact on, or result from other activities being performed in the area and/or at the same time:

 people working in the area at the time of the work or subsequently

 neighbouring or remote activities being performed at the same time

 Remote activities performed at different times to the work. Ask "what if":

 the person drops a tool/object

 the person slips

 the person makes a mistake / error of judgement

 equipment has not been fully purged / de-pressurised

 there is a ‘Loss of Containment” of a Hazardous Substance in the area

 a tool or piece of equipment fails

 the structure collapses

 critical systems are disabled (e.g. fire alarm/fighting systems)

**Table 1 Potential Hazardous Events**

The JSA Team ensures the control measures selected include appropriate measures to control the risk from any override/ removal of other control systems (e.g. temporary disabling of fire detection/alarm systems)

**RADIATION**

Exposure to:

 ionising radiation

 electromagnetic radiation

 ultra violet radiation

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The JSA Team also identifies any legislative or other specific control measures and/or specific risk assessment techniques to be applied to the particular tasks involved in each step, for example the requirement to complete a Confined Space Entry Permit.

**BIOLOGICAL HAZARDS**

 Exposure to biological hazards or infectious diseases

 Aggravation of a medical condition

 Contact with hazardous flora/fauna

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REVIEW AND UPDATE OF JSA

The JSA should be reviewed on at least a weekly basis and workers resign onto the JSA after it is reviewed.

**NATURAL EVENTS**

 Wind damage

 Lightning strike

 Earthquake

 Flooding

 Landslide/rock fall

 Ground Subsidence

The JSA must also be reviewed and updated and re-communicate to workers:

 when the work or work environment changes from the scope or conditions reflected in the JSA.

 after any hazards, near misses or incidents associated with the tasks are reported.

**SECURITY INCIDENTS**

 hostile action

 theft / fraud

 loss / corruption of data

CLOSE OUR OF JSA

### RISK CONTROL MEASURES

The JSA Team agrees measures to reduce the likelihood of each event and/or the seriousness of its likely consequences, taking into consideration their foreseeable causes. Risk control measures are selected in the following order of preference:

1. Elimination of the hazard.
2. Substitution of the hazard with less hazardous equipment, materials and/or processes.
3. Reduction of the risk through engineering controls (e.g. guarding).
4. Reduction of the risk through administrative controls (e.g. safe work procedures, signs, removal of people from the area, etc.).
5. Reduction of the risk through personal protective equipment.
6. Reduction of the risk through behavioural controls (i.e. reliance on awareness of hazards and personal judgement regarding actions to reduce the associated risks).

Upon completion of the task, the JSA shall be closed out by the responsible person. This involves physically marking the JSA worksheet as completed and ensuring it is not possible for it to be re-used.

RECORD KEEPING

Where required, the completed, closed out JSA shall retained with other records of the task, such as inspection and test plan results or permits.

TRAINING REQUIREMENTS

Supervisors, team leaders or other workers required to act as JSA team leaders shall receive appropriate training to complete and maintain JSAs in line with the requirements of this procedure.

### RECORDS OF TRAINING

Persons in control of the workplace shall maintain records of confined space training and make available during inspections and audits.

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REFERENCES

***PROCEDURE***

### WATER NEW ZEALAND PROCEDURES & GUIDELINES:

#### Health and Safety Procedures:

 Contractor Health and Safety Management

 Health and Safety Training Program

 Hazard Identification, Risk Assessment and Control

 Confined Space Entry

 Working at Heights

### LEGISLATION, REGULATION AND STANDARDS

 Health and Safety at Work Act 2015

 Health and Safety in Employment Regulations 1995