WHS-11 Job Safety Environmental Analysis (JSEA) Procedure

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Document History

Version No:	Date Released	Change	Remarks
1.0	01/11/2012	n/a	Procedure approved and released
1.0	12/09/2014	Rebranding	Rebranding and recoding
2.0	11/08/2015	Throughout document	Added references to new JSEA template V3 and guidelines on the risk assessment processes
2.0	29/03/2016	Page 1	Updated owner and sponsor

1 Purpose

The purpose of this work instruction is to outline the Job Safety and Environmental Analysis (JSEA) process used in Territory Generation. This process enables the identification of potential hazards and control measures at the task level by the persons carrying out the work.

The Territory Generation JSEA worksheet is the tool used to document this process.

By using a JSEA workers can:

- Break a job or task down into logical smaller steps
- Identify all the hazards involved within each single job step
- Select appropriate control measures to eliminate, reduce or mitigate each hazard
- Reduce the risk of an injury or incident occurring
- Facilitate improved communication about safety.
- Potentially identify tasks which can be improved by changing the method, reducing hazards or utilising better control measures.

2 Scope

This procedure is applies to all employees and contractors conducting work on Territory Generation maintained sites.

NOTE: Persons in control of Contractors planning to conduct work on Territory Generation maintained sites shall review the contractors JSEA process or equivalent. If the Contractor process does not meet or exceed Territory Generation JSEA requirements then the Contractor shall be instructed in and use the Territory Generation JSEA process as outlined in this work instruction.

3 References

- NT Work Health and Safety (National Uniform Legislation) Act as Jan 2012
- NT Work Health and Safety (National Uniform Legislation) Regulations June2013
- NT WorkSafe – Code of Practice – How to manage work health and safety risks Jan 2012

4 Roles and Responsibilities

Role / Title	Responsibility
Chief Executive Officer	Shall ensure that : • All personnel are aware of requirements of this procedure and its management in sites under Territory Generation control.

	• Initiates procedure review as required.
All Managers/Site Coordinators	Shall ensure that: • This procedure is put in place at all Territory Generation controlled power stations sites. • Personnel are advised and trained as necessary in the procedure to be followed. • Contractors are informed of and follow the procedure, where applicable. • Contribute to procedure reviews
Project Officers/Contract Managers	Shall ensure that: • Contractors under their control are informed of and follow the procedure, where applicable. • Contribute to procedure reviews
All Personnel	Shall ensure that: • This procedure is followed personally and by contractors/visitors under their control, where applicable • Contribute to procedure reviews
Document Owner	• The position responsible for the preparation, review and accuracy of this document.
Document Sponsor	• The position responsible for the approval and use of this document

5 Definitions

Job Safety Environmental Analysis (JSEA)	Means the process used to break a task into steps; identify the potential hazards and control measures; and implement these so that the task can be completed safely. This process is conducted at the task level by the persons carrying out the work and is also known as a task based risk assessment.
JSEA Worksheet	Means the template used to record the JSEA process
Hazard	Means any thing or condition which has the potential to cause injury or harm to health
Risk	Means the likelihood that death, injury or illness may occur because of the hazard
Risk management	Means the process of identifying, assessing, treating, monitoring, reviewing and communicating risks.
Shall	Means a mandatory requirement

Should	Means an advisory requirement

6 Records

6.1 Completed JSEA's shall be referenced to the associated job number and stored for a period of five years. It is at the discretion of each site coordinator as to if these records are stored electronically in TRIM or as a filed hard copy.

7 General Requirements

7.1 A JSEA shall be completed for all jobs or tasks which:

- Have no safe work method statement or operating procedure which has already identified the hazards and has processes in place to control the risk.
- Are complex, unusual or difficult
- Have been rarely performed or where new people are performing the task.
- Have a history of, or potential for injury or near miss
- Are safety critical e.g. working at heights, confined space entry, hot work etc
- Are under an access authority

7.2 A JSEA shall be completed by the worker or work group performing the task before the work is commenced.

7.3 The worker or work group assigned to complete the job or task shall review the scope of the job and hold a discussion on the job task including:

- Breaking down the job task down into logical process steps (Task Sequence)
- Identifying and assessing the hazards in each step. (Hazard Identification)
- Identifying controls to eliminate or control hazards in each step. (Control Measures)
- Identifying the responsible person who will implement the relevant control (Responsible Person)

7.4 Persons in control of Contractors planning to conduct work on Territory Generation maintained sites shall review the contractors JSEA process or equivalent.

7.5 If the Contractors process does not meet or exceed Territory Generation JSEA requirements then the Contractor shall be instructed in and use the Territory Generation JSEA process.

8 Completing the JSEA

8.1 Complete the Territory Generation JSEA worksheet starting with Page 1

a) Complete all mandatory fields:

- Location and Work Order/Project number
- Date and Time
- Job Description

- Access Authority and number (where applicable).

b) Review and consider any potential environmental and WHS hazards and control measures. The check boxes are prompts and if ticked YES, further details shall be provided on Pages 2/3.

c) If working at heights is identified – the Territory Generation Working at Heights Checklist shall be completed and attached to the JSEA.

d) If chemicals are to be used or encountered as part of the work the Safety Data Sheet (SDS) shall be reviewed to ensure the appropriate controls are put in place; and shall be attached to the JSEA.

e) If asbestos is known or suspected the relevant site asbestos register and Territory generation Asbestos Management procedures (WHS-07 & 07A) shall be reviewed before proceeding with the work.

f) Complete the JSEA worksheet Pages 2/3 progressing through the following steps:

8.2 STEP 1: Plan out the TASK SEQUENCE - What are you going to do?

a) Break the job task down into simple logical and sequential steps

b) Each step should not be too detailed or too broad – state what must be done – not how it's to be done

Example: Changing a flat tyre

Step 1: Position the car and set brakes. Block wheel

Step 2: Remove spare wheel and position it in a handy position

Step 3: Check and position the car jack

Step 4: Remove hubcap and crack wheel nuts

Step 5: Jack up the car

Step 6: Remove wheel nuts

Step 7: Remove wheel

Step 8: Position spare wheel

Step 9: Tighten wheel nuts up to a firm state

Step 10: Lower car on jack

Step 11: Tighten wheel nuts with wheel brace

Step 12: Replace hubcap

Step 13: Store jack and wheel, put tools away.

c) Note the following:

- Each step generally tells what must be done with no reference to how.
- No hazards are mentioned and no safety precautions are prescribed. That comes later.

- The job steps are described in their normal order of occurrence.
- The description of each step starts with a "do" word, i.e. position, remove, tighten, etc.
- It is best to make a list of all the job steps and then deal with one at a time.
- It usually only takes three or four words to describe a job step.
- If the job steps are made too fine there may be an unnecessarily large number of job steps.
- If the job steps are made too broad they may be too general and miss potential hazards.

8.3 STEP 2: Identify the HAZARDS – What could cause harm or damage?

a) After the job has been broken down into its basic steps, each of these steps is analysed for hazards and potential risks to personnel, plant, equipment and the environment.

b) The objective is to identify all the hazards, including potential hazards which may cause harm.

c) The clear identification of hazards associated with each job step is essential.

d) Remember: A **Hazard** is a thing or condition which has the potential to cause injury or harm to health; while a **Risk** is the likelihood that death, injury or illness (harm) may occur because of the hazard.

e) Identify any additional interactions - Consider interactions which may create additional hazards to those workers involved in the job task. It is important to step back ad look at the "bigger picture".

- Will your job task affect others?
- Will situations occurring around your work area affect you?
- Examples include: adjoining work, mobile plant, vehicle movements, environmental conditions etc.

Table 1: Examples of common hazards

Hazard	Risk
Manual Tasks	Overexertion or repetitive movement can cause muscle strain.
Gravity	Falling objects, falls, slips, trips of people can cause fractures, bruises, lacerations, dislocations, concussion, permanent injuries or death.
Electricity	Potential ignition source. Exposure to live electrical apparatus can cause shock, burns or death from electrocution.
Machinery and Equipment	Being hit by moving vehicles or mobile plant, or being caught by moving parts of plant and machinery can cause fractures, bruises, lacerations, dislocations, permanent injuries or death.
Hazardous Chemicals	Chemicals (such as acids, hydrocarbons, heavy metals) and dusts (such as asbestos and silica) can cause respiratory illnesses, cancers or dermatitis.
Extreme Temperatures	Heat can cause burns, heatstroke or fatigue. Cold can cause hypothermia or frost bite.
Noise	Exposure to loud noise can cause permanent hearing damage.
Radiation	Ultraviolet light, welding arc flashes, microwaves and lasers can cause burns, cancer or blindness.
Biological	Hepatitis, legionnaires' disease, allergies
Psychosocial hazards	Effects of work-related stress, bullying, issues at home and work related fatigue

8.4 STEP 3: Calculate the POTENTIAL RISK SCORE

a) Calculate the potential risk score for each step of the task sequence based on no controls in place.

b) Decide the **LIKELIHOOD** and then the **CONSEQUENCE** to determine the level of risk

LIKELIHOOD
E = Almost Certain (Multiple per year)
D = Likely (Time to time/ 1 per year)
C= Possible (Occasional/ 1 in 3 years)
B = Unlikely (Possible / 1 in 3-9 years)
A = Rare (Unusual/once every 10 years +)

WHS CONSEQUENCE	ENVIRONMENTAL CONSEQUENCE
5 = Severe (Fatality or permanent disability)	5 = Severe (Substantial widespread permanent damage)
4 = Major (Lost time injury or illness)	4 = Major (Long term effects on environment)
3 = Moderate (Medical treatment/short term)	3 = Moderate (Widespread temporary damage)
2 = Minor (First aid treatment)	2 = Minor (Localised low level damage)
1 = Insignificant (Incident report only)	1 = Insignificant (Contained/no environmental impact)

CONSEQUENCE

LIKELIHOOD	1	2	3	4	5
E	M	M	VH	E	E
D	L	M	H	VH	E
C	L	L	M	H	VH
B	L	L	M	H	H
A	L	L	M	M	H

Risk Matrix

8.5 STEP 4: Select your CONTROL MEASURES – What will be put in place to keep you safe?

a) Control measures shall be put in place to eliminate or minimise any risks associated with the identified hazards.

b) The objective is to reduce the risk to a level that is as low as reasonable practicable (ALARP).

c) In selecting the most appropriate control measure, the hierarchy of controls shall be used. (See Hierarchy of Controls table)

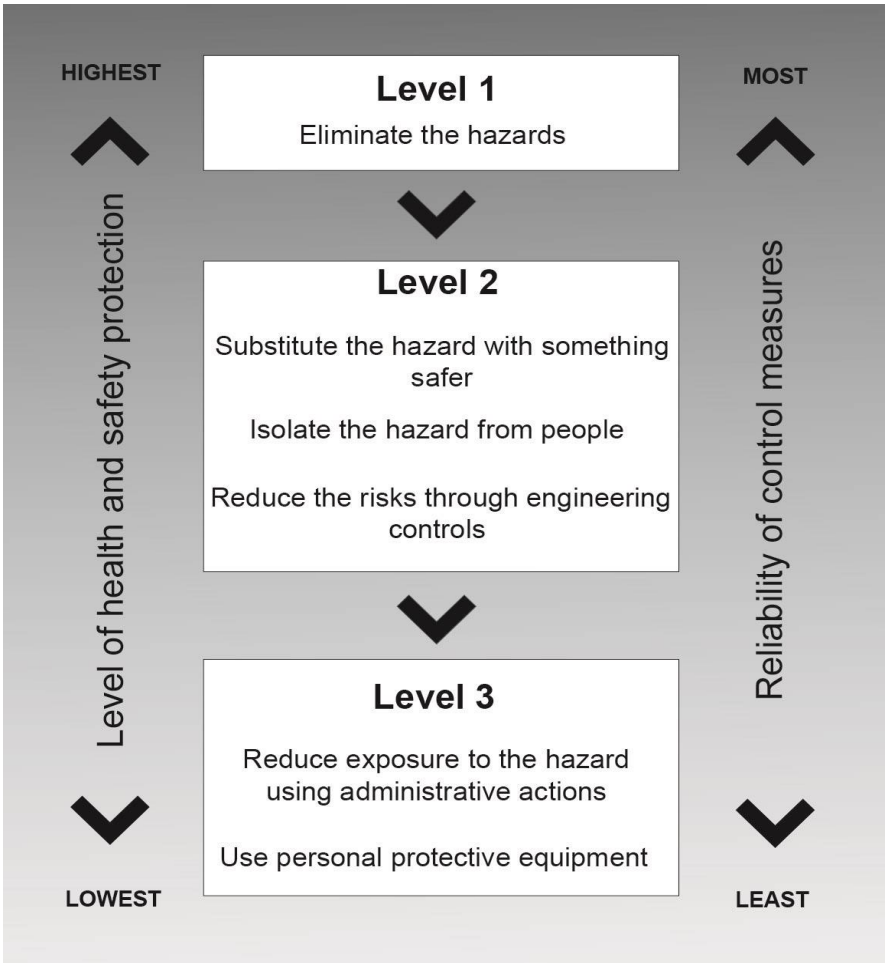
d) When a control measure is being chosen start at the top of the hierarchy list and work down one step at a time.

e) The nearer to the top of the list a control measure is, the more effective it will be.

f) Eliminating the hazard entirely is the most effective control measure

g) PPE is the least effective control measure as the hazard still exists.

h) WHS legislation may also provide specific measures to control risks and these must be followed.



i) The hierarchy of control

Control	Description	Examples
Elimination	Removing the hazard or hazardous work practice from the workplace. **NOTE:** **Elimination is the most effective control measure.**	➢ Installation of exhaust extraction to remove pollutants. ➢ Acoustic panels to reduce noise exposure
Substitution	Substituting or replacing the hazard or hazardous work practice with a less hazardous one.	➢ Change a chemical being used to a less hazardous one ➢ Use pumps for chemical dosing instead of decanting.
Isolation	Isolating or separating the hazard or hazardous work practice from persons at the workplace or the general work area.	➢ Install physical barriers such as tapes or locks ➢ Machine guarding.
Engineering	Engineering the hazard out to reduce the risk.	➢ Modifications to tools or equipment ➢ Mechanical ventilation ➢ Automating processes.
Administrative	Introducing policies, and changes in work practice and procedures that reduce the risk.	➢ Limiting the time employees are exposed to the hazard, ➢ Reducing the number of employees exposed, rotating jobs, ➢ Lockout or tag-out procedures
Personal Protective Equipment (PPE)	The risk control application of providing personal protective equipment should be considered only: ➢ When other control measures are not practicable. ➢ When used in conjunction with other methods to provide a greater measure of protection. ➢ Where specified by legislation as a basic requirement.	➢ Ear muffs, face masks, high visibility clothing, gloves etc. **NOTE:** **PPE is the last and least effective means of control as the hazard still exists.**

8.6 STEP 5: Calculate the ACTUAL RISK SCORE

a) Calculate the actual risk score for each step of the task sequence now that controls are in place.

b) If the actual risk score is **LOW**: Proceed with the job task safely.

c) If the actual risk score is **MEDIUM**: Review to see if additional controls can be put in place to further reduce the risk AND/OR obtain approval to proceed from your Line Supervisor.

d) If the actual risk score is **HIGH, VERY HIGH OR EXTREME**: Do not proceed with task. Discuss with your Line Supervisor.

8.7 STEP 6: Allocate the RESPONSIBLE PERSON – Who will do this?

a) A responsible person(s) shall be identified for each control measure

b) Clearly identifying and communicating the person responsible for a control will ensure the work party all know what is going to be done and who will be doing it, to keep them safe.

8.8 STEP 7: Finalise the JSEA

a) After the JSEA worksheet is completed all workers shall agree to and sign on to the JSEA

b) The completed JSEA shall be reviewed by a supervisor or peer, in consultation with assigned worker(s) prior to the commencement of the job task

c) Work shall only proceed when everyone agrees that it is safe to do so

d) Any worker joining the work group after the work has commenced SHALL read and sign on to the JSEA before commencing work.

8.9 STEP 8: REVIEW AND MONITOR the JSEA during the course of the work

a) The control measures put in place should be reviewed regularly to make sure they work as planned.

b) There are certain situations where you shall review your control measures under the WHS Regulations and, if necessary, revise them.

c) A review is required:

- When the control measure is not effective in controlling the risk
- Before a change at the workplace that is likely to give rise to a new or different health and safety risk that the control measure may not effectively control
- If a new hazard or risk is identified
- If the results of consultation indicate that a review is necessary
- If a health and safety representative requests a review.

d) If problems are found, go back through the JSEA steps, review the information and make further decisions about risk control. Work shall only recommence when every member of the work group feels it is safe to do so

e) NOTE: Any improvements found during the process of developing or implementing the JSEA should be communicated to line coordinators as these can potentially be used to create or update safe work procedures.

9 Associated documentation

- WHS-11A JSEA Template V3 TGENQDOC2015/20
- WHS-12A Working at Heights Checklist V3 (BDOC2013/107)

Appendix 1: Sample Completed JSEA Worksheet pages 2/3:

In the example below the job task of "preparing and painting a hand rail" is broken down into job steps, hazards are identified and appropriate controls put in place:

Task sequence	Hazard	Potential risk score	Control measure	Actual risk score	Responsible person
(1) Prepare Surface Using Electric Wire Brush	Hand Arm Vibration Syndrome	Medium	• Wear thick gloves • Use vibrating tool no more than 20 minutes at a time and for no more than 2 hours a shift	Low	Name of person
	Paint dust possibly containing lead	Medium	• Wear a P3 organic vapour mask when disturbing old paint. • Wear disposable coveralls. • Wash hands thoroughly before eating or smoking. • Thorough housekeeping	Low	Name of person
	Slips trips and falls	High	• Route all electrical cables sensibly to keep walkways and stairs free of hazards.	Low	Name of person
	Sunburn	Medium	• Wear broad brim and SPF 40+ sun block.	Low	Name of person
(2) Paint Handrails	Damage to adjacent surfaces from thinners and paint	Medium	• Use drop sheets	Low	Name of person
	Exposure to fumes from thinners	High	• If poorly ventilated, use P3 organic vapour mask	Low	Name of person
	Paint in eyes	Medium	• Wear safety goggles when working above shoulder height, safety glasses at other times	Low	Name of person
	Fire	High	• Keep containers of thinners and flammable solvents closed properly and stored in a cool place away from sources of sparks	Low	Name of person
(3) Housekeeping	Slip and trip hazards	Medium	• Remove waste to bin, tools to store, ensure barriers and signs are in place to denote wet paint.	Low	Name of person