

## HEALTH AND SAFETY Mandbook

A GUIDE FOR EMPLOYEES AND CONTRACTORS

> Issue 2 2020

#### Work safe, so you can go home safe.

At CS Energy safety is our core value and keeping ourselves and our workmates safe is at the heart of everything we do.

Whether it's your own personal safety, or understanding and managing process safety, all injuries and incidents on our site are preventable.

Being safe starts with our culture. It's fundamental that we have a culture where everyone is empowered to speak up to stay safe. Our culture depends on us all playing a part to take responsibility for our safety, as well as the safety of our workmates.

Our safety culture is underpinned by a combination of people, environment and practices, all held together by the 'glue' of strong leadership. This safety culture is supported by the Health and Safety Management System (HSMS) which clearly defines our expectations when it comes to safety and provides us with the procedures to follow and the tools to use to help us remain safe at work.

The Health and Safety Handbook ensures these procedures and tools are at our fingertips.

It is a practical guide which identifies the risks and hazards that we must be aware of and the actions that must be taken to manage these risks and hazards to prevent injury and harm.

Let's make the Handbook an essential part of our safety toolkit. In doing so, we are making the choice to be safe at work so that we can go home safe, each and every day, to enjoy our Personal Big 5 (PB5).



Andrew Bills Chief Executive Officer

This handbook also supports the CS Energy H&S Policy, Code of Conduct and our H&S obligations.

CS Energy H&S Policy: **B/D/11/39698** CS Energy Code of Conduct: **B/D/11/39710** CS Energy H&S Handbook: **B/D/17/15310** 

## **PERSONAL BIG 5**

Full Name	
Position	
Date of Issue	



# SAFETY is not about **PROTECTING YOU** SOMETHING it is about **PROTECTING YOU** SOMETHING

# WHAT'S



# CONSCIOUS



Dangerous Important

Pleasurable

Interesting



MILLIONS OF BITS / SEC

DIPI



RAS

# MY 50%?



# SUBCONSCIOUS

You're not OK

EloC 'Get rid of' One-up position



# The Life Savers are here to protect you

- No person shall direct anyone to break a Life Savers rule.
- 2. Only operate equipment for which you are trained, competent and authorised.
- Only commence work after all appropriate permits to work (PTW) are in place.
- 4. All necessary isolations must be in place and verified as effective in accordance with your role, before work can commence.
- **5.** Do not remove, bypass or modify a safety protection device without appropriate authorisation.
- 6. Do not work at heights without appropriate fall protection systems in place for people and objects.

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## PREVENTING SERIOUS INJURY AND FATALITY



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Critical controls, outlined in this section, are required to manage the risk of serious injury and / or fatality (SIF). The failure of a critical control has the potential to trigger a significant personal incident. Work can only start when effective critical controls have been identified and are in place. If critical controls are found to be ineffective, the activity must stop.







#### **1. CONFINED SPACES**



- Confined spaces are identified by a competent person, documented in the confined space register and appropriate signage and barricading is applied. Any systems likely to influence the atmospheric or physical status of a confined space are identified, purged or ventilated and / or confined space isolated before entry into the confined space.
- **Oxy torches** are stored outside of the confined space when not in use and during meal breaks.
- Working in a confined space is authorised by a permit, confined space control checklist and rescue plan, sign on and sign off and air quality testing.
- Prior to entry, testing of atmospheric conditions is undertaken utilising calibrated equipment. Monitoring equipment must be **bump tested** before each use. Ongoing testing requirements (continuous / personal) should be included in the risk assessment and consider attributes of the confined space, ventilation and introduction of or existing contaminants.
- Confined space standby person/s are located outside of the confined space at all times when the confined space is occupied, their primary duty is to activate the rescue plan (e.g. emergency response) and monitor the tag board.

- The standby person has an effective means of **two-way communication** with workers in confined spaces and a method of activating an emergency response.
- Where there is a risk of atmospheric hazards e.g. hot work, continuous monitoring of the atmosphere is undertaken whilst work in the confined space is performed.
- Personnel involved in confined space work have attained applicable **training** and **competency** for:
  - working in a confined space work party member, standby person,
    Person In Charge of Work (PICW), Officer In Charge (OIC), Permit to Work
    Officer (PTWO)
  - atmospheric monitoring of a confined space PICW, OIC
  - supervision of confined space work PICW, OIC
  - confined space permit to work PICW, OIC, PTWO.

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Working in Confined Spaces	CS-PTW-HAZ-03	B/D/11/39828
Confined Space Declassification	CS-PTW-SOP-07	B/D/13/4385
CCV SIF Hazard Confined Spaces	S2291	B/D/19/15923



#### **2. CRANES AND LIFTING**



- **Cranes are inspected** by a competent person in accordance with statutory and Original Equipment Manufacturer (OEM) requirements and maintenance log books are current.
- Lifting gear is periodically inspected and tagged by a competent person and visually inspected prior to being used in accordance with OEM specifications. A register is kept for all lifting gear.
- Limiting and indicating devices are fitted to mobile cranes, with load indicators fitted to all mobile cranes with a rated capacity >3 tonnes.
- Crane operators and dogman / riggers have effective **communication** processes in place.
- Crane operators and persons slinging loads or directing loads must have appropriate licences and competencies. Safe slinging techniques must be adhered to.
- The type and weight of loads is confirmed and is less than the safe working load of the lifting device and equipment. The weakest link must be identified in the system.
- Lift Plans are developed and approved for complex lifts.

- **Ground conditions** are assessed by a competent person for ensuring the stability of the lift. Consideration of the following must occur: surface conditions, surface slope, underground / overhead services, weather conditions, interaction with other operations. If **ground compaction** is required, this must be done before a lift is done.
- Exclusion zones are established and tag lines used to guide loads.
  Personnel remain outside exclusion zones at all times, and never walk under suspended loads.
- When electrical exclusion zones are established in the vicinity of powerlines or other electrical apparatus, a non conductive tag line is to be used to guide loads. The dogger cannot be the electrical exclusion zone spotter if they are undertaking dogging work. The spotting in this case, must be done by a competent person i.e. operating plant safety observer or electrical safety observer.
- **Outriggers** are effectively deployed in accordance with OEM specifications.
- Loads capable of shifting until secured remain attached to the lifting device and tag lines, or are securely propped or chocked until secured. Free fall devices must be physically locked.

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Cranes and Lifting	CS-OHS-79	B/D/17/7986
CCV SIF Cranes and Lifting	S2282	B/D/19/15924



#### **3. DROPPED OBJECTS**



- Where a fall risk exists, the risk must be controlled to ensure objects are not dropped.
  - The risk must be assessed and consideration given to whether the work can be conducted at ground level.
  - Protection from falling objects is provided through primary controls such as edge protection (encapsulation) with exclusion zones and / or overhead protection provided as a secondary means of control.
  - Any equipment, tools or object used where there is a potential for it being dropped, must have a **securing mechanism** e.g. lanyards.
- **Drop zones** are established where overhead work is being performed. When establishing the extent of the drop zone the following should be considered:
  - size and weight of equipment and material
  - sloping surfaces and the ability of material to roll
  - the height of the work above the lower level
  - falling object travel distance based on the velocity generated
  - the possible deflection of falling objects by structures, pipes or equipment in the area

- personnel and mobile equipment must be removed from the drop zone and fixed equipment protected from damage whilst the drop zone is in effect
- weather conditions e.g. high winds
- refer to attachment 10 Drops Calculator to be used as a reference only.
- **Barricading and signage** is erected to prevent personnel from entering an established drop zone area. **Access** to these areas must be **controlled**.
- Controls must be put into place to ensure tools, material and equipment are secured when they have the potential to fall e.g. toolbags and handlines.

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Barricades and Signage	CS-OHS-36	B/D/12/11085
Scaffolding	CS-OHS-70	B/D/14/22741
Working at Heights	CS-PTW-HAZ-02	B/D/11/19581
CCV SIF Hazard Dropped Objects	S2284	B/D/19/15921



#### 4. WORKING WITH ELECTRICITY



- All electrical equipment and electrical leads (excluding out of service equipment) are **compliant** with Australian or international standards, **tested for ground continuity, tagged and recorded.**
- Electrical work is planned to **minimise** the need to conduct **live work**.
- All energy sources and equipment are treated as **live until tested for** de-energised and controlled under a permit.
- Wiring systems such as **live cabling** must be selected and installed so as to minimise the risk of mechanical damage.
- Switchboards are arc flash rated, appropriately signed, and arc flash Personal Protective Equipment (PPE) available. If a risk of contact with electrical energy exists, controls are identified and implemented, including the provision and use of insulated tools, gloves, mats, low voltage rescue kits.
- When working on equipment with multiple sources of electrical supply, the correct switching process under the permit to work system, isolation and earthing processes must be followed.
- All live electrical circuits are identified prior to any penetrations of surface (walls, flooring and roofing).

- **Temporary electrical works** are installed, tested and certified in accordance with AS/NZS 3012:2019 Electrical installation Construction and demolition sites.
- Portable electrical equipment must be connected to circuits fitted with **Residual Current Device (RCD)** protection.
- When working near live Overhead Line Equipment or live electrical parts, regulated **safe working distances / exclusion zones** are identified and maintained.
- Hazardous areas require special consideration and identification. Refer to the CS Energy Electrical Safety Management Procedure. Any hazardous area requires protection from "ignition sources" as an explosive atmosphere may be present.
- Temporary **electrical leads** must be protected from mechanical damage and suspended off the ground where possible. Equipment such as insulated hooks and / or lead stands could be used to protect against this damage.
- Each person that performs electrical work **must be trained, competent** and authorised.
- All electrical work must be completed in compliance with CS Energy electrical procedures.



TITLE	CS DOCUMENT ID	TRIM REFERENCE
Electrical Safety Management	CS-OHS-31	B/D/11/30957
CCV SIF Hazard Working with Electricity	S2288	B/D/18/15916
Maintenance and Testing of Entity Works, Electrical Installations and Electrical Equipment	CS-OHS-32	B/D/11/30958
Maintenance and Testing of Portable Electrical Equipment	CS-OHS-33	B/D/11/30959
Selection, Maintenance and Use of Electrical Safety Equipment and PPE	CS-OHS-34	B/D/11/30960
Multiple Supply Electrical Equipment Isolation and Access	CS-OHS-53	B/D/11/48694
Single Feed Electrical Isolation and Access	CS-OHS-56	B/D/12/762
CCV SIF Hazard Working with Electricity	S2288	B/D/18/15916

#### 5. WORKING WITH ENERGY (ISOLATION PERMIT TO WORK (PTW))



- Equipment must have lockable isolation points to prevent the release of hazardous energy sources, including purchased equipment and equipment that is designed or modified. Each isolation point is labelled with a unique identifier.
- All energy sources and equipment are treated as **live until proven isolated** by a competent person e.g. PTWO, electrical worker.
- All hazardous energy sources are identified, de-energised and physically isolated prior to working on equipment / systems.
- Work planning includes **identification and isolation** of all hazardous energy and is to be authorised by a **permit**. A competent PTWO specifies requirements to manage hazardous materials / stored energy.
- **Isolation points are clearly identified**, proven, locked and tagged preventing inadvertent energising.
- Isolations are **checked** by the OIC to ensure they are effective.



- Personnel about to commence working on plant are to confirm:
  - the **PTW** and **scope of work is accurate** for their task
  - discuss isolations and requirements of the task with the OIC
  - **sign onto** the PTW and **lock on** with their Personal Lock
  - each person that performs work under isolation permit is trained and competent.
- Physical isolation, de-isolation and any isolation changes are completed and communicated by a **competent and authorised person OIC, PTWO.**

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Permit to Work Manual	CS-PTW-01	B/D/11/19582
Permit to Work Definitions	CS-PTW-02	B/D/11/19579
Permit to Work (PTW) Reference Documentation	CS-PTW-03	B/D/11/19580
Multiple Officers in Charge of Work	CS-PTW-SOP-03	B/D/11/45320
Use of International Technical Experts on Site	CS-PTW-SOP-04	B/D/11/19577
Permission to Perform Minor Tasks on Live Plant	CS-PTW-SOP-05	B/D/11/19575
Change Management in PTW System	CS-PTW-SOP-06	B/D/12/10395
CCV SIF Hazard PTW	S2285	B/D/19/15919

#### **6. HAZARDOUS CHEMICALS**



- Hazardous chemicals are substances, mixtures and articles that can pose a significant risk to health and safety if not managed correctly. They may have health hazards, physical hazards or both.
- Examples of chemicals that can cause **adverse health effects** include, but not limited to:
  - toxic chemicals (inhalation, ingestion)
  - chemicals that cause skin damage
  - carcinogens.
- Examples of chemicals that can immediately injure people or damage property include, but not limited to:
  - flammable liquids
  - toxic fumes and vapours
  - compressed gases
  - explosives.
- Hazardous chemicals and dangerous goods must be risk assessed and approved for use by the site Chemical Coordinator prior to being stored on site.



- **Identification signage / labelling** is in place on vessels, containers or pipes containing hazardous chemicals, including when decanted.
- A **register** must be used to record all hazardous substances stored on sites. **Chemalert** is the preferred chemical management system at CS Energy and is accessible from the CS Energy Intranet.
- All chemicals must have a **current SDS** available and it must be consulted before use of the chemical.
- Handling of hazardous chemicals is minimised by using automated systems.
- Protection against damage and **containment** of hazardous chemicals using design, barricading, signage and preventative maintenance regimes.
- Chemicals must be **stored** in accordance with chemical compatibilities and storage requirements outlined in the SDS and must not come into contact with incompatible materials. There must be sufficient **bunding** to contain potential spills / leakage.
- Chemicals must be **disposed** of in accordance with the SDS and site environmental processes.

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Hazardous Chemicals and Regulated Waste	CS-OHS-08	B/D/11/30976
Dispatch for Transport of Dangerous Goods	CS-OHS-15	B/D/11/30942
CCV SIF Hazard Hazardous Substances	S2283	B/D/19/15922

## **PREVENTING SERIOUS INJURY AND FATALITY**

#### 7. WORK AT HEIGHTS



- Working at height is where a person at work or other person in the vicinity is exposed to a risk of a fall from one level to another that can cause injury.
- Planning for all work at heights activities must consider the most appropriate means to **access** the work area e.g. scaffolding, Elevated Work Platform (EWP), scissor lift. The preferred method is to do the work from the ground.
- **Permits** and **solid barricades** are utilised for the removal of penetration covers, flooring, guard rails or grid mesh that expose a worker to a fall from height.
- Fall restraint or fall arrest equipment is utilised when working at height and the provision of a secure working platform is not practicable. Workers at height wear full body harnesses that incorporate shock absorbing lanyards or inertia reels. This work must be authorised by a working at heights control checklist (including rescue plan). All harnesses are to be fitted with suspension trauma relief straps.
- Purpose designed anchor points are certified and inspected by a competent person. Inspections are to be documented in the register.
- Where work methods require detaching and reattaching at height, a dual lanyard system is utilised to ensure that at least one connection point is maintained at all times (100% hook up).



- **Ground conditions** are assessed and verified as solid, stable and suitable for EWP operations.
- **Spotters** with equivalent training to the operator are in place during EWP operations.
- If a harness is required the person working at heights must have the relevant competency.
- Personnel involved in working at heights have attained **training to the national competency** for the activity they are performing:
  - Work Safely at Heights (RIIWHS204D or equivalent)
  - Height Safety Supervisor (RIIWHS204D, RIIRIS201D, PUAFIR215, PUASAR022A, PUAEME001B or equivalent)
  - Mobile Equipment (e.g. EWP, scissor lift)
  - Basic Scaffolder, Intermediate Scaffolder, Advanced Scaffolder (refer to attachment 11 – High Risk Work Licences (HRWL)).

REGISTERED	DOCUMENTS

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Working at Heights	CS-PTW-HAZ-02	B/D/11/19581
CCV SIF Hazard Work at Heights	S2286	B/D/19/15918

#### 7A. LADDERS

- Ladders are to be rated as a **commercial / industrial** ladder. No **domestic** ladders are to be used on site.
- The following guidelines apply to the general use of ladders:
  - Portable ladders to be **designed** in accordance with **AS1892**.
  - Fixed ladders to be **designed** in accordance with AS1657.
  - When ascending or descending a ladder, a person should face the ladder and have three points of contact with the ladder. The worker should not climb from one ladder to another. Boots should be cleaned before climbing and the worker is not to stand or work any higher than the tread or rung indicated on the ladder as the highest standing level (as a minimum the top 2 rungs).
  - Secure the footing on **firm, stable, level surfaces**. Where possible a second person should foot step ladders.
  - Extension ladders are to be secured (tied off or other) and supported at a **ratio 4:1**.
  - The extension ladder is to extend at least 1 metre above the platform to be reached.
  - The load limitations of the ladder Safe Work Load (SWL) are to be known and be of an appropriate size for the task. Workers should avoid carrying any items when climbing and the load does not restrict movement or cause a person to overbalance.
  - Where personnel are working off a ladder above 2.0 metres (excluding platform ladders and purposes for gaining access) this work is considered to be working at heights. Refer to the Working at Heights Procedure.
  - The maximum ladder lengths at CS Energy sites are:
    - step ladders 3m
    - single ladders 6.1m
    - extension ladders 7.5m
    - extension ladders (for electrical work) 9.2m
- Where a traffic risk exists, **barricading and signage** is to be erected around the work area to prevent unwanted interaction from other workers or vehicles.



- Specific ladder requirements:
  - Conductive material (metal ladders) are not to be used near energised sources.
  - Step / platform ladders are required to be **fully open** with the metal spreader locked before use. A step / platform ladder must be used In sufficient space to allow a fully spread position.
  - A single sided stepladder may be used in the closed position by leaning it against a support, however care should be taken to ensure that all the load is carried by the front stiles.
  - Wooden ladders cannot be painted and should not be used where they are subject to prolonged exposure to high temperatures.
  - Only **one person** is permitted on the ladder at any time.
- **Ladder register** should be maintained by site and each ladder tagged with a unique identifier.
- Ladders are to be inspected at least every six months and visually inspected prior to use to identify defects e.g. loose steps or rungs, slippery steps or rungs, cracks or splits in steps, loose nails or bolts or other metal parts, damaged or missing ties.
- Ladders with defects are to be taken out of service immediately and tagged appropriately. Under no circumstances should a temporary repair be made to a ladder. In this scenario the ladder should remain out of service until it is **repaired by a competent person or destroyed** in such a manner as to render it useless. Repairs carried out to ladders should not weaken the ladder from the original design specification.
- All mobile ladders are to be **stored** so as not to contribute to the degradation of the ladder. Ladders stored must be kept free from dirt and grease.

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Ladders	CS-OHS-52	B/D/12/1362

## PREVENTING SERIOUS INJURY AND FATALITY

#### **7B. SCAFFOLDING**



- Personnel who conduct any activities related to scaffolding must be trained in the tasks applicable to their role. If required, scaffolders must hold the required high-risk license. There are three levels of licence required:
  - basic scaffolder
  - intermediate scaffolder
  - advanced scaffolder
- Scaffolding can be classed into 3 categories:
  - light duty (rated to a Safe Work Load of 225 kg per bay)
  - medium duty (rated to a SWL of 450kg per bay)
  - heavy duty (rated to a SWL of 675kg per bay)
- Scaffolders are also required to have the required competency for working safely at heights. Fixed and temporary anchor points must be inspected by the Height Safety Supervisor if fall protection is to be worn whilst assembling or disassembling scaffold.
- Scaffold Plans manage the risk of erecting and dismantling scaffold. Unusual or complex scaffolds require an engineering design and approval. If any alterations are made to a scaffold, the Scaffold Plan must be updated accordingly.


- **Toeboards** installed on scaffolds must be secured in place to prevent uplift and dislodgement.
- Where a falling object risk exists, scaffolds must be erected with a **screen** between the **toe board and the guard rail**, extending along the entire opening, for example, a brick guard or mesh.
- All scaffolds must have a completed **Scafftag** attached by an authorised scaffolder, at all access points.
  - **Scafftags** must remain up-to-date and legible for the duration of the scaffold use.
  - The scaffold must only be used according to the load rating on the Scafftag. Scaffolds are designed to support the anticipated combination of loads.
- Scaffold must be **used as intended**.
- If a scaffold is fitted with **wheels**, they **must be lockable** to prevent movement of the scaffold while in use.
- Inspections of scaffold must be completed at specified intervals outlined on the Scaffold Register at a frequency of no more than 30 days. Scaffolding suppliers and / or contractors are to provide evidence that their equipment is regularly inspected to Australian Standards (AS 1576 Series, and AS 4576 – Guidelines for Scaffolding). Non-compliant equipment must be segregated or quarantined to prevent use until repaired or disposed of.
- Metal scaffolds are **electrical conductors**, and scaffolds must be protected against electrical hazards.
- The area around a scaffold must be **barricaded** during construction or dismantling. **Drop zones** must be calculated to prevent unauthorised or inadvertent access by workers or vehicles operating in the vicinity.
- Prior to disassembly, a sequential method of dismantling must be adopted.
- A Scaffold Handover Certificate must be provided for scaffold over 4 metres high.

# PREVENTING SERIOUS INJURY AND FATALITY

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Scaffolding	CS-OHS-70	B/D/14/22741
CCV SIF Hazard Scaffolding	S2290	B/D/19/15914



#### 8. HOT WORK

- Hot work is not to be carried out outside a designated hot work area without work authorised by a **permit** and a **hot work control checklist**.
- Hot work includes:
  - fire or spark producing activities
  - introduction of a non-certified **ignition source** into a classified hazardous area
  - activities within a hazardous area that have the potential to cause a release of gas in that hazardous area
  - **activities within a hazardous area** that have the potential to cause a large dense dust cloud in the hazardous area.
- Examples include:
  - welding, grinding, heating, thermal, friction or oxygen cutting
  - taking / using communication devices, combustion engines, torches, battery or mains powered tools in a hazardous area
  - maintenance of a gas pipeline valve on-line that could create an explosive gas atmosphere
  - Air-arc cutting a liner creating a large dust cloud.
- **Sources of ignition** are understood for hot work tasks, conditions are monitored and controls are implemented e.g. fire extinguishers. **Ventilation** requirements may be necessary in the vicinity of hot work activities. Sparks must be contained.
- Only **intrinsically safe equipment** is to be used in hazardous area zones.
- If **atmospheric testing** is required, testing is undertaken utilising calibrated equipment. Monitoring must be **continuous** unless risk assessed. Monitoring equipment must be **bump tested** before each use.

- Personnel involved in hot work activities have attained applicable **training** and **competency** for:
  - welding operations
  - atmospheric monitoring
  - hot work permit to work OIC, PTWO.
- Where sparks may have spread or there is a risk of re-ignition to other areas of plant that contains flammable material / substances, **fire watch** arrangement with an **emergency plan** must be employed.
- **Physical barriers** around and below hot work activities are installed to prevent unauthorised or inadvertent access by workers or vehicles operating in the vicinity.
- **Equipment** is fit for purpose, **inspected** and stored upright e.g. flash back arrestors, gas cylinders.

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Hot Work	CS-PTW-HAZ-01	B/D/11/19573
CCV SIF Hazard Hot Work	S2289	B/D/19/15915



#### **8A. CUTTING AND GRINDING**

- Grinding disks, guards and attachments must be secured and correctly fitted. The grinder must be used with the correct guard supplied by the manufacturer and use the tightening tool by the grinder manufacturer to tighten the disc. Ensure the maximum RPM disc speed marked on the disc is higher than the maximum speed of the grinder.
- All cutting discs have an **expiry date** and each manufacturer is obliged to print year when validity ends clearly on the cutting disc. **Do not use** the disk **after the expiration date**.
- Use the correct **spindle flange** and lock nut for the disc and make sure these are fitted the way the grinder manufacturer shows in the instruction manual. The type of flange or fitting method may vary for cutting and grinding discs. Ensure flanges and nuts are **free from wear or damage** before use.
- The grinding disk, body and lead must be **inspected** for damage and not used if found to be damaged or faulty. Grinders must not be **modified** i.e. removal of guards. Fingers, hands and power cords must be clear of grinding disks.
- Allow the grinder to run to speed before cutting or grinding. Secure and support when grinding by using clamps, bench vices. Do not touch the work piece immediately after grinding operations as it may be extremely hot.
- Nine inch grinders are not to be used at CS Energy unless a risk assessment has been completed and it has been approved prior to use by the Site Manager. Alternative methods and tools should be carried out prior to selecting a nine inch grinder.
- Workers are to wear **hearing protection** when grinding.
- Ensure **flammable substances** are not placed or stored in areas when performing grinding activities and the work environment is kept **clear of rubbish** and **slip, trip hazards.**

#### **8B. WELDING**

- Personnel who conduct any activities related to welding must be trained and competent in the tasks applicable to their role. This includes manual metal arc welding, gas tungsten arc welding, and gas metal arc welding. CS Energy requires the following positions for welding activities:
  - welder
  - welder officer
  - welding supervisor.
- Welding activities must be approved using S1587 Weld Instruction and S1588 Weld Instruction and NDT Request Form. Approval must consider the welding technique, welding thickness, material to be welded, temperature of weld, whether welding is required for non destructive testing.
- Check the requirements of the **SDS** for welding rods and wires to identify which gases and fumes are released during welding.
- **Understanding the materials** being welded and the risks associated with these materials must be controlled e.g. vulcanised vessels, lead paint.

# Planning before a welding task should control the following welding risks:

- airborne contaminants
- radiation risks
- electrical risks
- · fire and explosion risks
- burns and exposure to heat
- · compressed and liquefied gases
- noise generated from welding activities.
- Use designated welding bays with adequate ventilation where possible to remove airborne contaminants (local extraction, natural ventilation, fans). Ensure equipment maintenance and inspections occur on all ventilation equipment and record findings of inspections.



- If welding is required in a confined space, the **Confined Space Procedure** must be followed.
- Check work area is free from rubbish, paper or dust which could be a potential fuel source or product dust explosions. **Isolate** fuel sources from ignition sources.
- Erect **barricading and signage** to prevent unauthorised or inadvertent access by workers or vehicles operating in the vicinity.
- If welding takes place in a very **hot environment**, the welder may need to **limit their time** and manage their **fatigue** by having suitable rests and cooling off periods.
- Ensure appropriate PPE is available and correctly used including respiratory protection, flame retardant clothing, gauntlets, face shields and helmets. PPE must be maintained to ensure its suitability and effectiveness. Atmospheric monitoring to measure the amount of welding fume in the welder's breathing zone may be necessary to ensure PPE is working effectively.
- Use **flash back arrestors** on gas hoses to prevent the flames travelling back and igniting the gas in cylinders.
- **Hazard reducing devices** are required on welders. This could be in the form of a **Voltage Reducing Device (VRD)** or hand piece trigger switch. VRDs must be provided with a reliable device that indicates that it is operating satisfactorily. Where a lamp is used, it must light when the voltage has been reduced. Operators should follow instructions of the original equipment manufacturer (OEM) and the requirements of AS1674.2 when verifying the performance of the VRD.
- **Drain and purge equipment**, such as gas hoses, and lock the gas off at the valve when not in use and during breaks.
- Keep and maintain fire fighting equipment near welding area.
- A fire watch must be established post hot work.

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Pressure Welding Procedure and Recording System	CS-WELD-1002	B/D/08/3091

# **PREVENTING SERIOUS INJURY AND FATALITY**

#### 9. VEHICLE INTERACTION



- A suitable vehicle will be selected before travel and checked before use by completing a pre-start inspection. Defects identified must be rectified before becoming operational.
- Traffic management plans must be implemented to ensure the following is identified and controlled: vehicle interactions, speed limits, signage, overhead powerlines, parking arrangements, pedestrian interaction.
- Changes in traffic conditions on sites must be communicated to affected workers.
- Mobile equipment must be fitted with flashing lights, reversing alarms and seat belts. Where appropriate a serviceable fire extinguisher and first aid kit should be fitted.
- Earthmoving equipment and tractors must be fitted with Roll Over Protection Structure (**ROPS**). Falling Object Protective Structures (**FOPS**) should be considered when there is a risk of falling objects onto earthmoving equipment.
- Operators must adhere to speed limits, obey traffic signs, park in designated car parks, give way to pedestrians, maintain three point contact when mounting and dismounting mobile equipment. Mobile phones are not to be used by drivers except hands free applications or if stopped at a safe location.
- All persons must be **fit for work** before operating vehicles, plant and mobile equipment. All persons are to monitor their own fatigue.



TITLE	CS DOCUMENT ID	TRIM REFERENCE
Work Related Travel and Accommodation	CS-HR-31	B/D/12/17845
CCV SIF Hazard Vehicle Interaction	S2287	B/D/19/15917

#### **9A. JOURNEY MANAGEMENT**

- The general rules for fatigue management whilst driving are:
  - Do NOT drive after being awake for 17 hours.
  - Do NOT drive if your work hours exceed 14 hours in a shift. The employee is to be provided with transport for the return journey to their home or a suitable place for sleep.
  - Do **NOT** drive more than 12 hours in a 24 hour day.

Drivers are to estimate the time it will take to drive to their destination. Travel time, when in control of a vehicle, prior to the commencement of and after the completion of work must be incorporated into the calculation of fatigue levels to ensure it is managed.

- A Journey Management Plan is to be completed before any work travel (excluding normal route to and from work). A journey can be logged by calling National Resource Centre (NRC) on 1800 952 100 before you start a journey or by using the TraXu mobile application. NRC is a 24 hour call centre that provides monitoring services to ensure employees travelling by road have safely checked into their destinations. All travel should be planned and consider the following:
  - environmental conditions, weather forecast
  - road conditions and / or surfaces, potential delays
  - lengthy travel distances
  - unfamiliar environment or travel route
  - remote areas
  - off road driving conditions
  - wildlife
  - traffic / wide loads
  - railway crossings
  - unsecured loads, equipment or luggage.



- A communication plan must be created for all travel and an allocated check in person nominated. Mobile phone coverage should be checked before the journey commences.
- **Emergency supplies** will be considered including: water, food, first aid kits.
- All vehicle and mobile equipment drivers must be **appropriately trained and competent** to drive the type of vehicle they are operating.
- Personnel who regularly travel between sites should receive **defensive driver training** and **first aid training**.

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Journey Management	CS-OHS-72	B/D/19/13792

# **9B. CHAIN OF RESPONSIBILITY**

- The aim of Chain of Responsibility is to ensure heavy vehicle safety and that everyone in the supply chain understands their roles and responsibilities. If road transport by heavy vehicles is used by any part of the business the business is part of the Chain of Responsibility.
- All parties who have control or influence over the transport task are deemed responsible under the **Heavy Vehicle National Law (HVNL)**.
- Personnel involved in the Chain of Responsibility include:
  - CS Energy management
  - consignors (those who send freight)
  - vehicle operators (drivers)
  - employers (of drivers)
  - packers
  - loaders
  - unloaders
  - consignees (receivers)
  - schedulers.
- The top risks relating to Chain of Responsibility includes;
  - scheduling and transit times
  - time slot management
  - unsafe loading and unloading practices
  - not measuring or knowing mass, dimension and/or load restraint
  - loads not adequate for truck
  - driver fatigue
  - driver health and fitness for duty
  - speed
  - vehicles not fit for purpose, not maintained, inadequate.



- CS Energy representative must complete the Loading / Unloading
   Checklist when a heavy vehicle loads or unloads freight at a CS Energy site.
- **Training** has been identified for different positions in the Chain of Responsibility at CS Energy.

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Chain of Responsibility	CS-OHS-78	B/D/19/356
Loading / Unloading Checklist	S2272	B/D/18/26036



# **PROCESS SAFETY**

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Process safety means we understand and proactively manage the plant risks that can cause harm to people, plant and the environment. Process safety is critical to the safe management and operation of CS Energy's power stations. Simply defined Process Safety is keeping the hazards contained, so we do no harm – electricity in the wires, steam or gas inside the pipes.

# **PROCESS SAFETY VS PERSONAL SAFETY**

**Process safety** is about our **plant** running safely and understanding and managing the **operational plant hazards** that could lead to a major incident and hurt our people, damage our assets, or harm the environment.

**Personal safety** means our **people** work safely. We understand and manage the risks associated with the work we perform that could cause serious injury or fatality.

Everyone has a part to play in identifying, fixing and managing the hazards associated with our operational plant that have the potential to cause harm to our people, plant, operations and environment.

# MAJOR ACCIDENT HAZARDS (MAH) ASSOCIATED WITH ELECTRICITY GENERATION

MAHs are incidents that have the potential to result in a multiple fatality and is typically initiated by a loss of primary containment (LOPC) event or may also result from major structural failure.





#### **High Voltage Electricity**

- High Voltage System
- Low Voltage System

Electricity, even low voltage electricity, can kill. Uncontrolled release of electricity can also lead to a fire, explosion, arcing and toxic chemical release.

#### **High Energy/Pressure Fluids**

- Steam Pipe Big Bore
- Feed Water Pipe
- Feed Water Tank/DA Vessel

High pressure steam at CS Energy stations can be greater than 25 mega pascals. It can be invisible to the eye, with the power to cut through steel. If the steam's release is uncontrolled, it could be fatal. An uncontrolled release would expand explosively, potentially leading to dangerous projectiles, burns and even suffocation. High pressure water used in power generation can also be lethal.

#### **Rotating Plant**

- Black Stop
- Overspeed
- Axial Flow Fan Blade (FD, PA & ID)
- Blade Failure (LP Blade Liberation)

Pumps and turbines have high speed rotating parts. CS Energy steam turbines rotate at 3,000 revs per minute. Mechanical failure of rotating plant could result in fatalities from projectiles or secondary events, fires or explosions, caused by the projectiles impacting adjacent equipment.

# **PROCESS SAFETY**

#### **Explosive/Flammable Substances**

- H2 Fire/Explosion
- PF Fire/Explosion
- Coal Dust
- Transformer Oil Fire
- Turbine Oil
- LPG

Explosive and flammable substances are hazards that have the potential to cause a fire or explosion if the combination of fuel and oxygen, and conditions, are right.

# **Civil Structures**

- Dam Wall Failure
- Steel Structure Collapse
- Concrete Structure Collapse
- Timber Structure
- Ash Tank/Fabric Filter/Fly Ash Silo

Loss of stability and collapse of a major structure could result in multiple fatalities.

# **Toxic/Corrosive Chemicals**

- Chlorine LOC
- Ammonia LOC
- Sulphuric Acid LOC
- Caustic Soda

There are a number of chemicals which are associated with the production of electricity. Some are related to cooling water and boiler process water treatment, others are related to emissions control or fire suppression. Potential incidents include toxic gas clouds, chemical burns, fires and explosions.

# **PROCESS SAFETY CONTROLS**

For each MAH, there are a series of controls that can prevent the hazard from harming people, the plant, operations or environment.

CS Energy Process Safety Framework provides a structured way of thinking about these controls.

The four (4) categories of Process Safety Controls are: Plant, Process, People & Recovery.

#### **Plant Controls**

Plant controls relate to the design of the plant. This includes inherently safer design techniques, layers of protection and operating limits.

#### **Process Controls**

Process controls consider the systems and procedures for operating and maintaining the plant.

#### **People Controls**

People controls are the knowledge, capability and actions of CS Energy people. It considers human factors, leadership and culture, using professional skills, experience and knowledge of process safety controls to apply to everyday tasks.

#### **Recovery Controls**

Recovery controls are the controls used to reduce the consequences should an incident occur. These are CS Energy emergency response plans and equipment including detection and suppression systems, and environmental response systems.

REGISTERED DOCUMENTS			
TITLE	CS DOCUMENT ID	TRIM REFERENCE	
Process Safety Management	CS-RISK-08	B/D/20702	

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# **OPERATIONAL HAZARDS**



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Operational hazards are identified at each site and form part of the risk register. The minimum requirements for operational hazards are outlined below. CS Energy personnel must implement the following controls before work commences.

# **1. ABRASIVE BLASTING**

- Prior to performing abrasive blasting tasks:
  - Prohibited chemicals are not to be used for abrasive blasting tasks.
     Read and understand the corresponding Safety Data Sheet (SDS) for any hazardous substances in use.
  - Inspect the work area and ensure equipment is fit for purpose and compliant.
  - Perform a Job Safety Environment Analysis (JSEA) and gain approval to complete the abrasive blasting tasks. The risk assessment should identify if surfaces being blasted contain lead.
  - Erect barricading and signage to prevent unauthorised or inadvertent access by workers or vehicles operating in the vicinity.
  - Ensure the area has adequate ventilation and by products of blasting are contained.
  - Ensure adequate Personal Protective Equipment (PPE), noise protection, breathing apparatus is used to protect against exposure.
  - Notify other workers in the area and use a safety observer where required.
  - Assess the **ignition sources** in the area and **isolate** flammable energy sources.
  - Ensure all workers performing the task are **trained and authorised**.
- Air monitoring may be required outside of designated blast cabinets to ensure exposure limits are not exceeded or the appropriate controls are implemented and effective.

- Upon completion of blasting, **turn off the air supply** and **bleed pressure** from blasting hoses.
- Transport of substances for external disposal must be via an approved disposal carrier. **Regulated waste** must be tracked to its final disposal point.

# 2. BARRICADES AND SIGNAGE

- Barricading and signage is to be erected around a work area to delineate and provide safe exclusion / distance from other workers or from vehicles. The requirement for barricading may be identified as a result of completing a risk assessment or as a result of plant failure, incident or defect found necessitating access to be controlled.
- Where possible, erect **solid barricading** at least 2 m away from an unprotected edge.
- The level of barricading required needs to consider the following:
  - location of the barricade (area required for the task and other work activities)
  - length of time barricading is required
  - potential for objects to fall from one level to another, drop zones including deflection, dropped objects – toe boards
  - location and proximity of other workers in the area
  - emergency response requirements
  - barricades must be **visible at all times** and in all lighting conditions
  - inspections of the barricade must occur (frequency will vary depending on the nature and location of the barricade).



- Various methods of barricading exist:
  - **Soft barricading** use of tape and signage with information on the hazard present and details of the OIC, PICW or erector.
    - Warning tape and warning signs caution (yellow and black) used as a warning and persons should not enter the area unless they understand the hazard specified on the sign. Contact the person who erected the tape or supervisor on shift before entering the area and only do so if necessary to perform work.
    - Danger tape and danger signs danger (red and white) used as a barricade for control of access to a "high risk hazard area" that may present a life threatening risk. Personnel are to contact the OIC of the permit and need to be signed and locked onto permit to enter these areas.
  - Solid barricades (mesh barrier panels / fencing / scaffold tubing) used to provide a physical barrier capable of performing a similar function as a permanent handrail. Where solid barricades are used they must be accompanied with the correct type of signage to communicate the hazards.
  - Plastic chain if soft barricading is required to be installed for an extended period of time, plastic chain should be used as a substitute to plastic tape. Plastic chain is not a substitute for hard barricading.
  - Bunting is used to identify exclusion zones around powerlines or to indicate safe heights of trucks.
- Barricades can only be **removed** when there is no further need to prevent or control access and the task is complete and the reason for protecting persons and equipment no longer exists.

REGISTERED DOCUMENTS		
TITLE	CS DOCUMENT ID	TRIM REFERENCE
Barricades and Signage	CS-OHS-36	B/D/12/11085

#### **3. EXCAVATION AND TRENCHING**

- Underground services are positively located and identified by mechanisms such as:
  - pot-holing
  - scanning
  - Dial Before You Dig
  - site drawings / survey plans.
- **Spotters** are in place during excavations in the vicinity of underground services. Their primary duty is to activate the rescue plan (e.g. emergency response).
- **Safe approach distances** for underground services have been identified with no mechanical devices used within the safe approach distance.
- Digging, excavation, trenching and spike driving (>100mm) activities are authorised by a **permit** and an **excavation and building penetration control checklist.**
- Excavations >1.5 m include controls such a **boxing, benching, battering** or shoring.
- Excavations are established and monitored to safely enable access and egress and maintain stability. Physical barriers around excavations are installed to prevent unauthorised or inadvertent access by workers or vehicles operating in the vicinity.
- All heavy machinery / mobile plant / equipment must be stored at least 2 metres from the edge of an excavation. Any debris and spoil are to be kept at least 1 metre from the edge of the excavation or trench.
- Where an excavation has the potential to contain an **unsafe atmosphere**, controls for Confined Spaces must be implemented.
- Damage or penetration of any material containing **asbestos**, must be controlled by the Asbestos Management Plan.
- Energy sources must be **positively isolated** for activities involving digging, excavation, or trenching.



- Personnel involved in excavation, trenching, and digging work have attained applicable training and **competency** for:
  - earth moving equipment, including excavator, bobcat, dingo
  - digging, excavation and building penetration permit to work Officer In Charge (OIC), Permit to Work Officer (PTWO).

# **3A. BUILDING PENETRATION**

- Services are positively located and identified in relation to walls, columns, floors, ceilings, cladding, plant and cable trays that support or conceal services.
- Building penetration activities are authorised by a **permit** and an **excavation and building penetration control checklist.**
- Energy sources must be **positively isolated** for activities in the vicinity of concealed services.
- Damage or penetration of any material containing asbestos, must be controlled by the **Asbestos Management Plan**.

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Digging Excavation and Building Penetration	CS-PTW-HAZ-04	B/D/11/19576

#### 4. GUARDING

- Guarding provides a **physical barrier** and is **designed** to prevent contact with moving parts or hot parts, screen harmful emissions, minimise noise, prevent ejected parts or off cuts from striking workers, prevent unintended activation of operational controls.
- Guarding must:
  - be of **solid construction** and securely mounted to resist impact or shock
  - make by-passing or disabling of the guard as difficult as is reasonably practicable
  - not create a risk in itself (for example it must not obstruct operator visibility, weaken the plant, cause discomfort to operators or introduce new hazards such as pinch points, rough or sharp edges)
  - be of appropriate design and material for the environment (e.g. if exposed to corrosion use corrosion-resistant materials or surface coatings)
  - control any risk from **potential broken or ejected parts** and work pieces
  - allow for servicing, maintenance and repair to be undertaken with relative ease
  - include controls to prevent contact with the hazard when guarding is removed (for example, interlocks and / or isolation hardware and procedures to prevent plant being restarted with guarding removed).
- No safety guard is to be **removed** until the operating machinery is stopped and the power supply is **isolated** under a Permit to Work (PTW).
- Warning devices must be installed on plant to alert personnel of imminent movement, for example, start-up of a conveyor in accordance with AS4024.1.
- All modifications to guarding on plant and equipment must be subject to the **Modification of Plant Procedure**.
- A **maintenance and inspection schedule** for safeguarding on plant and equipment must be in place. Records of defects must be kept.



# 5. HOUSEKEEPING

- **Good housekeeping practices** should be administered to prevent injury. Examples of poor housekeeping can include:
  - things spilt and left on the floor
  - items left out or extending onto walkways or work areas
  - flooring or mats in poor state of repair
  - poor or broken lighting in work areas and walkways
  - incompatible items stored causing a fire risk.

# To achieve a tidy workplace and free from hazards consider the following:

- suitable storage areas
- spill management processes
- cleaning practices
- maintenance schedules
- repairing or replacing flooring if unsuitable.
- All work areas should be maintained free from rubbish. All tools and equipment should be returned to appropriate storage when not in use.
- Walkways and work areas should be appropriately illuminated.
- If work areas are to be left and a hazard exists from poor housekeeping,
   barricading and signage must be erected.
- Good housekeeping practices should be maintained at all times.

#### 6. MANUAL HANDLING TASKS

- Risks associated with manual handling can include:
  - handling loads frequent lifting with the back bent / twisted or pushing / pulling loads
  - repetitive work using the hand or arm, or gripping tools / loads tightly
  - static work of the whole body working in a fixed position with the back bent, continuous sitting / standing, or driving vehicles for long periods
  - static work of the upper limb working with the neck, shoulders and arms in a fixed position e.g. using tools and handling heavy loads
  - awkward body postures
  - high or sudden force or vibration
  - work area design or layout nature, size, weight or number of things handled or the work environment e.g. hot or cold.
- **Risks** posed by manual handling tasks **must be assessed**, with consideration to applicable injury records in partnership with the persons performing tasks:
  - using direct observation of work areas, and of the tasks being performed
  - using information available in Job Dictionaries.
- Hazardous Manual Task Assessment Template assesses repetitive force, sustained force, sudden force, repetitive movement, posture, vibration, work history and should be used when there is a significant or high manual task risk.
- The site risk register should be consulted to manage manual handling tasks. Tasks involving manual handling risks should be assessed by using a task based risk assessment tool e.g. JSEA.
- Hazardous Manual Task training will be provided to workers regularly undertaking manual handling tasks.

REGISTERED DOCUMENTS		
TITLE	CS DOCUMENT ID	TRIM REFERENCE
Identifying and Assessing Hazardous Manual Tasks	CS-OHS-57	B/D/12/84199

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# 7. PNEUMATIC TOOLS AND EQUIPMENT

- All pneumatic equipment and hand tools purchased, hired or used at CS Energy must comply with the requirements of AS4041:2006

   Pressure Piping.
- **Pressure hose restraints (whip socks)**, are to be fitted to air hose connections to restrain the hose in the case of hose fitting failure where the hose diameter is greater than or equal to 25 mm NB and the operating pressure is greater than or equal to 760 kPa (i.e. greater than or equal to110psi). Whip socks are also to be used where there is an identified risk of injury to workers if the hose diameter and pressures are less than those mentioned.
- External whip socks are to be fastened to a suitable mounting point, supplied for that purpose with shackles or other appropriate fittings. The shackles are to be rated to the same or greater strength than that of the whip sock.
- Where practicable, preference is to be given to the use of air hoses fitted with **internal whip socks**. Where a hose is fitted with an internal whip sock, this does not negate the need to also fit the hose with an external whip sock.
- Ratings are to identify maximum hose operating pressures, and the rating is to be marked on the whip sock.
- Where any doubt exists regarding the suitability of a whip sock mounting point and / or associated shackles, fittings etc., an engineer is to be consulted to ensure suitability / strength rating/s.
- **Mounting points** are to be positioned in an **appropriate location**, near the hose connection point, protected from damage and excess wear.

# 8. REGISTRATION AND AUTHORISATION OF PLANT

- The following plant relevant to CS Energy must be registered:
  - Pressure vessels pressure equipment, other than pressure piping and categorised as hazard level A, B or C according to the criteria in section 2.1 of AS4343:2014 (pressure equipment - hazard levels), except:
    - gas cylinders
    - LP gas fuel vessels for automotive use
    - · serially produced vessels
    - pressure equipment excluded from the scope of AS/NZS 1200:2015 stated in section 4(1).
  - Mobile cranes.
  - Lifts and escalators and moving walkways.
  - Boilers categorised as hazard level A, B or C according to criteria in section 2.1 of AS4343:2014 (pressure equipment - hazard levels).
- A **certificate of registration** will be issued for all registered plant (fixed and mobile). Plant registration is **valid for 12 months** and must be renewed by Work Health and Safety Queensland (WHSQ) each year by 31 January.
- If **plant ownership** changes, the person who holds the certificate of registration for registrable plant must notify WHSQ that they no longer have management or control of the plant.
- A **register** must be kept for all registrable plant.



# 9. REMOTE OR ISOLATED WORK

- **Remote** or **isolated work** means work that is isolated from the assistance of other persons because of location, time and the nature of the work.
- Supervisors must ensure so far as is reasonably practicable, that all remote
  or isolated work situations or tasks are identified, in consultation with
  workers and risk assessed prior to the commencement.
- Planning to undertake remote or isolated work should include:
  - the time of the activity to be undertaken e.g. daytime or after dark
  - communication methods, radio, phone, call in method
  - the vehicle has been serviced and checked prior to the remote work being undertaken
  - whether the **risks** of the job can be **adequately controlled** by one person e.g. are they working:
    - with hazardous substances and / or plant
    - near or on a roadway
    - in confined spaces
    - in excavations.
  - environmental factors such as extremes of temperature, fire bans, floods, severe storms, and potential for animal (including reptile and insect) attacks
  - the **method of travel**
  - emergency scenarios first aid kits, water, other supplies
  - other **potential emergencies** associated with the environment or activity
  - whether the person is **medically** fit to work remotely or in isolation.
- The **communication** plan must be in place to positively identify the welfare of the person/s conducting the remote activity. Activate **emergency plans** when necessary.
- Personnel who regularly perform work in remote locations should receive **first aid training** and **4WD driver training**.

#### **10. SPRAY GUNS, COMPRESSORS AND PUMPS**

- Hazardous chemicals from spray painting may be inhaled, swallowed or absorbed through the skin and eyes and should be prevented. Read the corresponding **SDS** before performing spray painting activities.
- All paints are to be mixed and poured in designated areas. Paints are flammable and must be stored away from ignition sources and incompatible materials.
- Use designated spray booths, painting areas with adequate ventilation (local extraction, natural ventilation, fans). Ensure equipment maintenance and inspections occur on all ventilation equipment and record findings of inspections.
- Where possible, **automate the process** or use a less hazardous process (e.g. use high volume low pressure (HVLP)) rather than conventional spraying.
- Ensure appropriate PPE is available and correctly used, refer to the relevant SDS. A Type A-Class P1 (organic gases / vapours and particulate) respirator is required for spray painting as well as full length overalls with hood and chemical resistant gloves.
- Erect barricading and signage to prevent unauthorised or inadvertent access by workers or vehicles operating in the vicinity.
- Avoid dry sanding unless dust extraction equipment is used. **Use wet sanding** where practical.
- **Eliminate ignition sources** from hazardous areas and flammable liquids, correctly earth equipment and eliminate short circuits.
- Ensure **antistatic clean up procedures** are adequate i.e. use vacuum cleaner rather than brooms, wet the area before sweeping it and don't use compressed air.
- **Emergency stops / guards** must be fitted on all spray painting equipment to prevent spills and unwanted release of chemicals.


### **11. SMOKING**

- Smoking may only occur in **designated areas** to eliminate the risk of ignition, fire, explosion and health effects associated with passive smoke. Smoking is prohibited within any enclosed place, premise, workplace, building, plant enclosure or structure, within areas identified as hazardous, near windows or air conditioning intakes.
- **Signs** and **smoking receptacles** are placed in designated areas to identify the locations where '**Smoking is permitted**'.
- CS Energy subsidises programs for any employee who is committed to quitting smoking.

### **12. STRUCTURAL INTEGRITY**

- Buildings, fixed plant, vehicles and mobile equipment is **designed and** installed in accordance with relevant ISO/AS Standards, Codes of Practice and relevant engineering standards.
- **Commissioning** documentation is completed for all structures in accordance with engineering **specifications**.
- Structure and plant is **operated within design limits** and maintenance activities performed on structures, maintains structural integrity.
- A regular **inspection regime** is in place for the identification of maintenance requirements to ensure relevant design criteria and structural integrity is being maintained. **Modification to structure and plant** undergo approval and risk assessment.
- **Traffic control** is designed to reduce the risk of interaction between vehicles, mobile equipment and structures.
- Do not overload grid mesh. Safe Work Loads (SWLs) must be checked.

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Plant Modification	CS-AM-010	B/D/10/7377

### **REGISTERED DOCUMENTS**

### **13. WORKING ON OR NEAR WATER**

- When **operating boats** at CS Energy the following must be considered:
  - Safety equipment must comply with the registration requirements of the vessel. If requirements aren't specified the minimum safety equipment (water safety kits) must contain the following: two serviceable oars, sufficient Type 1 Personal Flotation Devices (PFD) for all personnel on board, fire extinguisher, appropriate anchor with 2 m of chain attached to anchor rope, bucket and rope, bungs available and inserted, mirror (if required).
  - Loading of boats must be maintained within design or registration limits and capacities are not to be exceeded.
  - Planning to use boats should consider the current condition of the boat, the development of a suitable rescue plan and a review of the log book from previous operations of the boat.
  - Unpowered boats
    - A licence or boat registration is not required for unpowered boats.
- Working Near Water from Land
  - When planning to work near dams and waterways a risk assessment must be completed and take into account the risk of falling into water.
     The risk assessment should consider the use of PFDs, additional safety equipment to be carried and a communication plan if help is required in addition to the normal risks.

### **HEALTH HAZARDS**



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Occupational health issues which may cause illness and disease, include exposure to chemical, physical, biological and environmental hazards. The intent of the following health considerations is to prevent illness or disease through the management of occupational health issues. The exposure risk profile is used to identify priorities for the control of hazards that pose the highest risk to worker health. Health surveillance requirements may be required for particular identified health hazards.

### **1. ASBESTOS CONTAINING MATERIALS (ACM)**

- Chronic exposure to asbestos fibres increases the risk of progressive fibrotic lung diseases, reduced lung function and exercise capacity, development of benign pleural plaques, increased risk of lung and pleural cancers.
- The **National Exposure Standard** for asbestos fibres over an eight hour day is 0.1 fibre / ml of air for all forms of asbestos.
- CS Energy's ultimate goal is for all sites to be free of ACM. ACM can be found however, in some buildings and plant systems on site. The material may be a hazard if disturbed during renovation, refurbishment, demolition or maintenance activities.
- Asbestos is to be identified and signed at the location of the ACM. A register of asbestos containing materials is to be made available to all workers. The asbestos register must be consulted prior to any refurbishment, maintenance or demolition work and updated accordingly.
- All workers and contractors on premises where ACM are present, and all other persons who may be exposed to ACM, must be **provided with** full information on the occupational health and safety consequences of exposure to asbestos and appropriate control measures.
- **Ongoing monitoring** of in situ asbestos will be monitored by suitably qualified persons to ensure fibres are not exposed or airborne. If asbestos is exposed it must be **enclosed**, **encapsulated or sealed**.

### **HEALTH HAZARDS**

- Removal of asbestos must be done under controlled conditions by licensed asbestos removalists with approval from CS Energy personnel under a site specific Asbestos Removal Control Plan and an asbestos removal control checklist must be completed. Air monitoring is provided if asbestos is removed. Barrier tape and warning tags secured around the perimeter of the task to remove asbestos to prevent unauthorised or inadvertent access by workers.
- **Disposal of asbestos materials** will be controlled, bagged and disposed off site. **Asbestos waste**, including contaminated PPE and cleaning materials (e.g. cleaning rags and plastic sheeting used to cover surfaces in the asbestos work area) are to be **removed and disposed** of into bags and treated as **regulated waste**.
- Clearance to re-occupy an asbestos work area is determined by a thorough clearance inspection conducted by a competent person. All of the barriers, warning barricade tape and warning signs are to remain in place until the clearance certificate to re-occupy has been granted. A clearance certificate is to be provided to CS Energy by the asbestos removal contractor at the completion of the work and monitoring.

### **REGISTERED DOCUMENTS**

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Asbestos Management Plan	CS-OHS-43	B/D/11/30966



### 2. DUST

- Exposure to dust can cause health effects including exposure to respirable dust, crystalline silica and inhalable dust. Where it is reasonably suspected that excessive dust may be present in a work environment a risk assessment should be carried out.
- Dust **exposure limits** over an eight hour period (current at time of printing) are;
  - Respirable Dust 3mg/m3\*
     \*NOTE: this exposure limit will reduce in 2022 to 1.5 mg/m3
  - Crystalline Silica (Quartz) 0.05mg/m3\*
     \*NOTE: effective 1 July 2020
  - Inhalable Dust 10mg/m3.

### Health risks associated with dusty areas include (but are not limited to):

- irritation of the eyes, nose and throat
- dermatitis or inflammation of the skin
- sensitisation
- aggravation of pre existing lung conditions
- in severe cases, permanent damage to lung function.
- Physical risks also associated with excessive dust include:
  - obscuring of signs and instruments
  - abrasive damage to equipment
  - reducing light emission from light fittings
  - in extreme cases, explosions from the ignition of coal and other dust.

- For tasks that generate excessive dust, **dust suppression controls** must be implemented to reduce risk of dust exposure and other hazards such as reduced visibility.
- The primary aim should be to **limit dust exposure** via the control of excessive dust emissions. This can be achieved through the modification of plant to remove dust at the source. Other methods of reducing dust emissions are through housekeeping practices, dust suppression, ventilation and extraction techniques.
- Where situations arise where dust levels cannot be reduced significantly below the prescribed levels then appropriate **personal protective** equipment should be utilised by all personnel entering the area. Training
   in the correct selection and use of respiratory protection will be provided.
   Respirators must be correctly fitted, maintained in good condition and
   kept in clean storage when not in use. Fit testing must be completed for all
   personnel who wear respirators.
- A regular dust monitoring program will be completed on site for individuals and tasks performed by different Similar Exposure Groups (SEGs). This may also include monitoring to determine the effectiveness of implemented controls.
- **Health surveillance** will be completed for identified workers. A lung capacity test must be undertaken as soon as possible after an employee's appointment and then at intervals determined by the exposure.
- Results of personal and static dust monitoring must be shared with affected workers.
- New equipment purchased must be selected and maintained to **reduce dust levels** in equipment.

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Management of Respirable Dust	KA-OHS-24	K/D/19/24986
Management of Respirable Dust at Callide Power Station	CAL-OHS-014	C/D/19/8935

### **REGISTERED DOCUMENTS**



### 3. WORKING IN HEAT / UV

 Risks from occupational exposures to Ultraviolet (UV) Radiation for a number of SEG groups are high or significant and may lead to an increased risk of skin cancers. Thermal stress from process generated sources or ambient sources in the summer months also present a risk.

### Planning tasks in heat and exposure to UV should consider the following:

- environmental, personal and task factors
- · reduce scheduled work to a cooler time of the day if possible
- schedule rest periods at appropriate intervals
- remove heat sources if possible
- · install heat shields around hot components
- provide cool drinking water
- provide shaded areas
- wear appropriate PPE e.g. dark safety glasses
- apply sunscreen and wear a hard hat with a brim.
- A heat stress assessment may be necessary to determine comfort levels for individuals. The Basic Heat Stress Assessment (S2234 Basic Heat Stress Assessment Form) assists with this assessment. A detailed risk assessment may be necessary depending on the findings of the basic heat stress assessment.
- Temperature monitoring determines thermal work limit. The findings of the temperature monitoring calculations determine actions necessary to be taken to reduce risks associated with heat illness. Temperature monitoring devices are available to assess thermal work limits

REGISTERED DOCUMENTS		
TITLE	CS DOCUMENT ID	TRIM REFERENCE
Working in Heat	CS-OHS-24	B/D/11/30949

### 4. FITNESS FOR WORK

- As part of the recruitment process, workers will be required to complete a **pre-employment health assessment**. The pre-employment health assessment will verify the applicant is physically fit to perform the inherent occupational duties of the position, and will help to guard against work related illness or injury occurring subsequent to their employment.
- Each site must complete a **periodic review of roster systems** and monitoring and control of **working hours**. This includes workers required to work in an emergency call out situation. **Training on fatigue** for employees and leaders will be provided. Consideration must be given to the impact on sleep cycles e.g. commuting to and from site.
- Individuals are required to report to their supervisors if there is a risk to themselves or others in relation to fitness for work, e.g. fatigue, medication which may affect the ability of the worker to operate safely. Supervisors can record a fatigue assessment for an individual using S1886 Fatigue -Observation Record and Fatigue Assessment.
- **Rehabilitation programs** to support employees with impaired fitness for work due to work related injury or illness is available in relation to workers' compensation obligations and work health and safety obligations. Support will be given to workers injured at work, workers returning to work after a long period of absence and where appropriate non work related injuries and illnesses.
- Breath alcohol concentration (BrAC) testing will be conducted using a **breathalyser**. It must be calibrated and fit for purpose.
- **Drug testing** will be conducted through the collection and analysis of a **saliva specimen** and test for the following classes of drugs:
  - Amphetamine-type substances
  - Cannabinoids
  - Cocaine and metabolites
  - Opiates; and
  - Oxycodone.

All collection and transportation procedures will be in accordance with relevant Australian Standards.



### The following types of drug and alcohol testing can be performed:

- random
- with cause
- after an incident occurs
- reasonable suspicion
- · returning to work after worker registers a positive result
- pre-employment.
- A person will be treated as having a **BrAC positive test** result when they:
  - return a BrAC reading of 0.05% or greater (must be 0.00% to perform high risk work)
  - refuse to undergo a BrAC test
  - leave the workplace to avoid testing.
- Alcohol and other drug testing will be performed by trained and authorised testers.
- CS Energy provides a confidential Employee Assistance Program (EAP) through an external service provider, free of charge to employees and their families. Other active program commitments include Mates in Construction (MIC).

### **FATIGUE – RULES FOR PLANNED OR PRE-AGREED ROSTERS**

SITUATIONS	BASICS	VALUE
Limit number of actual work hours in any seven day period	Six attendances consisting of a maximum of 12 hours each	72 hours
Handover for continuous shifts for personnel in roles such as: Operators, Supervisor, PTW Officer, OIC, Inspector etc	In addition to 12 hour shift, maximum 30 minutes per shift	3 hours (six attendances x 30 minutes)
Planned maximum hours of work (not inclusive of handovers)	12 hours	12 hours
Long break frequency	Minimum 24 hours with no financial disadvantages	One break in every seven days
If personnel are required to work continuously for four or more nights the person will have a rest period after change from night work / shift before returning to normal roster	Four or more night shifts consecutively	48 hours (to support two night sleeps) *See Note 1
Rest period after change from night work / shift before changing to a different roster – where night work / shift has been worked continuously for three or more weeks	Minimum 48 hours *See Note 1	48 hours (to support two night sleeps) *See Note 1

\*Note 1: The 48 hour rest period may occur at anytime during a rostered period. Breaks which fall on normal projected roster working shifts will be paid as if at work.



SITUATIONS	BASICS	VALUE
Limit number of actual work hours in any seven day period	Inclusive of call outs	Normal roster plus 24 hours after which a 24 hour break must be taken without financial disadvantage
Maximum continuous hours worked in a 24 hour period inclusive of time worked as a result of unplanned contingency	16 hours *See Note 2	16 hours
Unplanned contingency – after a work period of greater than 12 hours further work periods of greater than 12 hours cannot be worked unless there has been a 24 hour break	16 hours *See Note 2	Up to 16 hours
Minimum short break duration (hours) following a call out or contingency	10 hours	10 hours
Call outs – maximum hours worked in a 24 hours period, starting from commencement of the previous attendance	16 hours	16 hours

#### **FATIGUE – RULES FOR CONTINGENCY AND CALL OUTS**

Note 2: The Callide Power Station Certified Agreement 2018 states "An employee must not work in excess of 14 hours for an one attendance, and also, 14 hours must not be worked more than once in any four consecutive attendances. Between 7pm and 7am the maximum attendance for a callout is 5 hours, unless a minimum of 8 hours notice is given. Provided that this maximum attendance does not apply to operators on the availability roster for night shift coverage."

### **HEALTH HAZARDS**

### **REGISTERED DOCUMENTS**

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Pre-Employment Health Assessments	CS-HR-70	B/D/11/30938
Fatigue Management	CS-OHS-12	B/D/11/30940
BAC Self Assessment Using an Alcoliser	CS-OHS-39	B/D/11/30962
Managing Alcohol and Other Drugs	CS-OHS-42	B/D/11/30965
Conducting Alcohol and Other Drug Tests	CS-OHS-44	B/D/11/30967
Workplace Rehabilitation and Workcover Claims	CS-OHS-04	B/D/11/30963
Flexible Working Arrangements – Working from Home	CS-OHS-65	B/D/13/22037



### 5. LEGIONELLA

 The presence of Legionella bacteria in water systems, soils and other media can present a risk of the development of Legionellosis to susceptible individuals who are exposed to the bacteria. Forms of Legionellosis are caused by **inhalation of tiny airborne droplets** (<10 µm) containing the Legionella bacteria.

## The risk of developing Legionellosis is increased by individual factors including:

- poor health
- · immuno-compromised individuals
- smoking
- age
- concentration of Legionella bacteria in the air and length of time a person is exposed to a contaminated aerosol.
- Various water sources can potentially contain Legionella bacteria, including cooling towers, cooling ponds, service water, waste water collection ponds, storm water dams and air conditioners. These identified areas, based on risk, are closely monitored and subjected to a chemical treatment program.
- **Monitoring** of Legionella bacteria is undertaken **at least monthly**. Due to the nature of the Legionella sampling and testing, results should only be used as a guide. Bacteria populations can increase rapidly, while the Legionella test generally takes about 10-14 days to complete, thus bacteria levels can be significantly different to the reported value by the time results are received. If a positive result is recorded it must be investigated and appropriate controls implemented.
- Permanent signs are erected on the walls of known potential Legionella risk areas, warning of the possible hazard. Temporary signs can also be placed in case of a confirmed outbreak of Legionella bacteria. It is recommended a P2 respiratory mask be worn if working in the immediate vicinity of these areas.

### **HEALTH HAZARDS**

#### 6. NOISE

- **Exposure to noise** is a significant risk for many personnel across CS Energy. Whilst exposure levels for personnel on site vary depending upon the task undertaken, **noise generated from plant processes** and equipment are likely to create average exposures exceeding noise exposure limits (without controls).
- Noise exposure limits are: **85 dB** (A) LAeq over 8 hours, or **140 dB**(C) LC, impulse or peak sound pressure.
- The preferred hierarchy of control for noise hazards is:
  - Wherever reasonably practicable, noise levels will be reduced by engineering means to acceptable exposure levels.
  - Where this is not possible, **duration of exposure** to the noise source will be restricted.
  - As a final option, the wearing of **personal hearing protectors** may be necessary.
- You should choose the level of hearing protection suitable for the sound level threshold of the task being performed. Stores stock Class 3 - 5 hearing protection (Class 5 being the highest level of protection).
- The existing hearing conservation efforts are supplemented with hearing
  protection fit testing, and the formal analysis of audiometric test data to
  indicate trends in hearing thresholds. Training in the correct selection
  and use of hearing protection will be provided.
- Where excessive noise exists on site, these must be identified with warning signage. The use of personal hearing protection is mandatory in these areas. Noise maps indicate the workplace risks to noise.
- A regular **noise monitoring program** will be completed on site for individuals and tasks performed by different SEGs. This may also include monitoring to determine the effectiveness of implemented controls.
- **Health surveillance** will be completed for identified workers. An initial **audiogram** must be taken as soon as possible after an employee's appointment and then at intervals determined by the exposure.



- Results of personal and static noise monitoring will be shared with affected workers.
- New equipment purchased must be selected and maintained to **reduce** equipment noise levels.

### 7. RADIATION (IONISING)

- **Radiation energy** is given off by unstable (radioactive) atoms. Radiation risks exist at CS Energy including:
  - Fixed gauges to measure density.
  - Welding Non Destructive Testing (NDT) (work completed by contractors to determine quality of welds).
- Radiation doses (exposure) must be measured and recorded. Do not commence work near radiation gauges without contacting the Radiation Safety Officer (RSO).
- All workers must observe Radiation Warning Signs.
- To minimise radiation doses, radiation exposure should be maintained as low as reasonably achievable by controlling time, distance and shielding.
  - **Time** reduce the time spent working in the vicinity of the gauges.
  - Distance the radiation intensity of a source decreases with the square of the distance from the source.
  - **Shielding** lead is built into the gauges to reduce the intensity of the radiation emitted.
- The Radiation Safety Act 1999 requires that a Radiation Safety and Protection Plan (RSPP) be developed. The Radiation Safety and Protection Plan will ensure that radiation doses are below prescribed limits and the number of people exposed and the likelihood of exposure to radiation is minimized. The Radiation Safety and Protection Plan outlines obligations of the Possession Licensee and the Radiation Safety Officer.
- The **Possession Licensee** obtains a radiation license and holds statutory obligations for CS Energy. The Possession Licensee must comply with these requirements to maintain the license.

### **HEALTH HAZARDS**

- The RSO must:
  - Be formally trained and certified by State Government.
  - Be responsible for radiation safety on site.
  - Acquire, supply and relocate radioactive substances as per the requirements of the RSPP.
  - Ensure gauges, premises and stores comply with the associated safety standards.
  - Provide or arrange for radiation safety training.
  - Advise the possession licensee and employees on radiation safety matters.
  - Be responsible for statutory gauge checks.
  - Be responsible for site compliance with the RSPP.
  - Approve the transport of radiation sources on site.
  - Isolate radiation gauges when necessary.
- In the event of an **emergency** in the vicinity of radioactive material, the **RSO** must be contacted and directions followed to **evacuate and barricade** the area.

### 8. HEXAVALENT CHROMIUM (CHROMIUM VI)

- Antiseize compounds applied to turbine components exposed to extreme temperatures may lead to the **production** of hexavalent chromium residue.
- The presence of Hexavalent Chromium should be **reported** and controls put in place when **handling, cleaning or working** on components that may have the Chromium VI residue:
  - air testing
  - ventilation
  - wet cleaning
  - high efficiency particulate filter vacuum removal
  - personal protective equipment (P2 particulate half face filtering face piece may be required).



- Ensure **personal hygiene practices** (e.g. no eating, drinking, smoking in work areas).
- Avoid contact with skin, eyes and adequate washing of hands and exposed skin.
- If parts are to be **moved** or **transported**, precautions must be taken to prevent contact with or release of the residue.

### 9. SYNTHETIC MINERAL FIBRE (SMF)

- Packaged SMF is to be supplied and packaged in a form that minimises release of fibres and is clearly **labelled**. **SDSs** are to be provided with the supply of SMFs.
- Work practices that are to be **avoided** when working with SMFs include:
  - workers using a **power tool** to clean an SMF product
  - workers using a high pressure water process to clean an SMF product or to clean up debris from an SMF product
  - workers using **compressed air** to clean an SMF product or a surface where debris from an SMF product is present.
- Workers working with SMFs wear **personal protective equipment** appropriate for the work being performed, a P2 particulate respirator and disposable coveralls.

### **10. ELECTRIC AND MAGNETIC FIELDS (EMF)**

- **Electrical energy** involves a voltage which is the pressure behind the flow of electricity which produces an **electric field**.
- Whenever an electric charge moves, a magnetic field is created proportional to the current - the higher the current the higher the magnetic field.
- Examples of potential EMF exposure at CS Energy includes:
  - generator circuit breakers
  - busbars
  - powerlines
  - substations/switchyards
  - large electric motors
- In general, electrical and magnetic fields from electricity assets are well below the Occupational Exposure Levels. Exceptions could include specific activities requiring access to the above areas.
- The further away and less time in areas with high levels EMF, the less exposure to someone.
- Controls to help with minimising exposure could include:
  - separation of workers
  - rotation of duties
  - shielding
  - design risk assessments
  - signage and barricading
- Workers with pacemakers or other medical electronic equipment should follow signage to access areas with higher level EMF.



### **11. WORKPLACE MEASURING AND MONITORING**

- Hygiene risks are to be understood at all sites to ensure exposure assessments are appropriately prioritised and workers exposed to a hygiene risk are monitored.
- A **hygiene risk assessment** is completed for all sites to understand the exposure profile (Occupational Exposure Level **OEL**), who is affected (Similar Exposure Groups **SEG**) and to what extent. Reviews of this process must be scheduled and completed to ensure currency of the system.
- Based on the findings of the hygiene risk assessments, a hygiene monitoring program is developed to ensure occupational exposure levels are not exceeded.
- Where the outcome of the occupational hygiene exposure process identifies significant potential for exposure, **health surveillance** may be required to be performed. Any exceedance of the relevant occupational exposure limits will be investigated and referred to the nominated Occupational Physician for advice if required.
- The outcome of any hygiene exposure assessment monitoring must be **communicated** to those affected.

### **REGISTERED DOCUMENTS**

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Health Hazard Exposure Management Procedure	CS-OHS-75	B/D/17/17210

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## HEALTH AND SAFETY MANAGEMENT SYSTEM (HSMS) ELEMENTS

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CS Energy have an overarching commitment to effectively manage Health and Safety (H&S), preventing any injury and illness onsite. There are 12 elements which form the basis of our Health Safety Management System (HSMS) and support the H&S Policy.

This document provides auditable criteria, against which HSMS across CS Energy can be measured.

The framework for the 12 Elements is based on the Plan-Do-Check-Act methodology – see Table 1.

### **CS ENERGY'S 12 SYSTEM ELEMENTS**



Table 1: Plan-Do-Check Act Methodology



## HSMS ELEMENT 1

# LEADERSHIP AND ACCOUNTABILITY

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### **1 OBJECTIVES**



Driven by **genuine care and concern** for our people, **H&S** is our number one value and the defining characteristic of everything we do in our business.



People understand and execute their **role and accountabilities** as a H&S leader at CS Energy.



Leaders are **visibly committed to Felt Leadership** to enhance our H&S culture.



The **H&S Policy** clearly states the overall health and safety objectives and demonstrates a commitment to improving health and safety performance and minimising harm.

A structured and effective **HSMS** is established, documented, implemented, maintained and continually improved providing the platform in which H&S activities are completed that contribute to safety performance.

The CS Energy Board of Directors seeks **assurance** of conformance with the elements and **regularly reviews** H&S performance, risks and strategic issues.

H&S roles and accountabilities of employees are defined, documented in **role purpose statements and Individual Achievement Plans (IAP),** communicated, understood, applied and reviewed.

People are **recognised and rewarded** for their positive H&S behaviours. Systems are in place that **recognise, reinforce and reward** H&S innovation, initiatives or desired behaviours.

H&S **lead indicator program** is a vehicle to visibly **demonstrate safety** leadership. Yearly targets are determined on each site and these Key Performance Indicators (KPIs) are monitored to track performance. Below is a breakdown of the H&S leadership tools at CS Energy.

TOOLS	WHEN TO APPLY
Visible Leadership	Visible leadership is demonstrated pro-actively by promoting initiatives and encouraging strong teamwork.
Pre-Starts, Toolbox Talks and Re-Starts	Ongoing <b>communication, education and awareness</b> are essential between workers and line management to understand business initiatives, changes to processes and other matters that impact H&S.
Safety Interactions	An on-the-job safety <b>conversation that engages</b> personnel to think about why safety is important and <b>reinforces positive behaviours and corrects at-risk behaviours.</b>
Hazard Identification	Hazards are things that have the potential to hurt our people. Records of hazards are entered into the LEAD App or in SAP and managed until they are closed out.
Critical Control Verifications	The process of <b>on-the-job verifications</b> to <b>confirm</b> <b>key critical controls</b> are in place to ensure activities can be performed safely.
(CCV)	CCVs are completed at a defined schedule, actions identified and tracked until closed to ensure critical controls are managed.
	Controls which are identified as critical are prioritised. These controls alone or in conjunction with other controls significantly reduce the likelihood and / or impact of a fatal risk.

TOOLS	WHEN TO APPLY
Workplace Inspections	<b>Scheduled inspections of the workplace</b> are completed, understanding the risks in the work environment. Outcomes of the inspection are discussed at prestart meetings; actions are fixed immediately if possible or checked to completion.

### **1 REGISTERED DOCUMENTS**

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Conducting Safety Interactions	CS-OHS-19	B/D/11/30945
Conducting Workplace Inspections	CS-OHS-20	B/D/11/30947
Guidelines for Contractor Health and Safety Plans	CS-OHS-27	B/D/11/30952
Fair and Just Culture	CS-OHS-47	B/D/11/30969
Recruitment and Selection	CS-HR-4	B/D/12/18413
Health and Safety Policy		B/D/11/39698



# LEGAL REQUIREMENTS

### **2 OBJECTIVES**



Legal, regulatory and other H&S requirements are **identified**, **accessible**, **understood** and **complied** with. Regular reviews of legal compliance is undertaken.



**Governance** and **assurance programs** are implemented and **actions** affecting legal compliance are **tracked**. Below is a breakdown of the H&S legal tools at CS Energy.

TOOLS	WHEN TO APPLY	
Legal Health and Safety Compliance Manual	This Manual outlines <b>relevant H&amp;S legislation</b> affecting CS Energy sites.	
	It provides a summary of the legislative framework, obligations, duties imposed and legal issues relevant to CS Energy.	
	It references relevant Codes and Standards.	
Compliance Certificates	H&S Compliance Certificates are <b>reviewed quarterly</b> <b>to check compliance with relevant legislation</b> . Material non-compliances are reported to Executive and Board Committees.	
Compliance Obligations Register	A list of <b>compliance obligations</b> is located in Insight based on legislative requirements that CS Energy must adhere to. Obligations may have associated actions that are required to be completed by a certain date by the designated <b>Action Officer.</b>	
H&S Officer Due	This handbook includes a <b>due diligence</b> checklist for Officers.	
Diligence Handbook	Legal obligations of Person Conducting a Business or Undertaking (PCBU), officers, workers, other persons who enter the workplace are referenced.	
	It outlines the consultation and representation arrangements.	
	Penalties for not complying with health and safety legislation are documented.	
TITLE	CS DOCUMENT ID	TRIM REFERENCE
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Petroleum and Gas Safety Management	CS-OHS-02	B/D/11/30946
CS Energy Legal Health and Safety Compliance Manual	CS-OHS-M-02	B/D/12/16045
Governance Framework Standard	CS-GOV-01	B/D/13/34513



## HSMS ELEMENT 3

# PLANNING, OBJECTIVES AND TARGETS





H&S goals and targets are established to drive continual improvement in performance and are incorporated into the business planning process.



**Business** and **strategic plans** for H&S are established and maintained to achieve **objectives** and **targets.** 

### **3 IMPLEMENTATION**

**Projects** and **budgets** are prioritised considering H&S risk.

H&S **performance is monitored** to establish effectiveness of the HSMS.

Below is a breakdown of the H&S planning tools at CS Energy.

TOOLS	WHEN TO APPLY
Statement of Corporate Intent	This outlines goals and objectives for the next financial year.
Leading / Lagging Performance Targets – Enterprise H&S Scorecard	Leading indicators (e.g. hazards, safety interactions, toolbox talks) and Lagging indicators (e.g. incidents, injuries) are reviewed for the future year for each site and populated into the Enterprise H&S Scorecard. Performance is then reported against these targets.
H&S Strategic Plan	CS Energy develops a strategic plan for H&S on a three year time horizon and is reviewed at least annually.
Project / Initiative Request	Project and initiative requests are submitted annually as part of the business planning cycle for review and approval.
Budgets	Budget process occurs annually guided by finance. Budget incorporates annual initiatives (STRATEX), capital (CAPEX) and operational cost (OPEX).
Site Business Plan	Sites develop business plans which link into the H&S strategic plan and include the breakthrough initiatives specific for individual sites.





## HSMS ELEMENT 4

# H&S RISK AND CHANGE MANAGEMENT

1

Hazards must be **identified** and **associated risks** must be **assessed, managed, monitored** and **documented** using our risk tools.



Planned and unplanned changes must be identified, risk assessed and managed.

3 Our Enterprise Risk Framework details **ownership** at each risk level and provides a system where we **systematically reduce risks** on our sites.

4

All risks must be controlled as per the hierarchy of control with **elimination** the preferred method.



A risk register must be maintained at a corporate and site level in the corporate governance register **Insight system**. CS Energy have a **3-tier hierarchy** of risk registers; Tier 1 (Group Risk Register), Tier 2 (Site Risk Register), Tier 3 (Operational Risk Register).

Risks must be considered during the **business planning process** and prioritised in accordance with the **risk rating.** 

Risks need to be **evaluated** after controls have been implemented to measure the **effectiveness** and confirm risk reduction so far as reasonably practicable.

### **4 TOOLS**

There are 4 levels of health and safety risk management at CS Energy:

- 1. Personal Risk Assessment
- 2. Task based Risk Assessment
- 3. Facilitated Risk Management
- 4. Enterprise Risk Management

#### H&S RISK TOOLS WHEN TO APPLY

#### Level 1 Personal Risk Assessment

2x2	• <b>Personal risk</b> assessment prior to commencing a task.
	Monitoring a task e.g. ongoing     more than one day.
	<ul> <li>There is a change to the working environment which require additional controls to be implemented (e.g. wet conditions, poor visibility, other work is being conducted that might impact on your task.)</li> </ul>
	<ul> <li>Identification of new hazards with potential to impact outcome of activity e.g. Where there are interacting work parties.</li> </ul>
	• It is designed to <b>remove complacency</b> and <b>increase awareness</b> ensuring the everyone consciously thinks through their jobs or tasks prior to initiating the work.

### H&S RISK TOOLS WHEN TO APPLY

#### Level 2 Task Based Risk Assessment

Job Safety and Environmental Analysis (JSEA)	<ul> <li>Prior to tasks deemed to have uncontrolled hazards e.g. PRA determines additional assessment.</li> </ul>
	Where there is no standard work instruction (SWI).
	<ul> <li>The first time a task is ever performed or for ad-hoc tasks (this can then form the basis for a new SWI).</li> </ul>
	<ul> <li>Where directed by Supervision or individual identifies the need e.g. for any task deemed to be higher risk.</li> </ul>
	<ul> <li>It is preferred JSEAs are handwritten, with the team preferably at the task location. All pre-populated JSEAs are to be task specific with a mechanism for site leadership to assure themselves that they have been read and understood.</li> </ul>
	<ul> <li>Used to manage variations from procedure that don't have adequate instruction.</li> </ul>
	• Attached to PTW and stored with paperwork.

H&S RISK TOOLS	WHEN TO APPLY
Standard Work Instruction (SWI)	<ul> <li>SWI is an <b>approved</b> document to manage a routine task.</li> <li>If task is completed <b>3 times under a JSEA</b>, then it should be considered a routine task and a SWI is to be created.</li> </ul>
	<ul> <li>SWI is developed using existing documentation e.g. the existing JSEA, maintenance task lists, OEM manuals, procedures.</li> </ul>
	<ul> <li>Workers involvement required during development.</li> </ul>
	<ul> <li>The use of an approved SWI does not require the subsequent use of a JSEA. 2x2 PRA is used to manage environment assessment.</li> </ul>
	Controlled document in TRIM not registered.
	• <b>No risk rating</b> for each step. An SWI is the safest way to complete the routine task due to prior risk assessment and subject matter expert input.
	<ul> <li>A variation to a task conducted under a SWI must be managed by completing a JSEA for the variation in the field. Captured variations should be added to the SWI.</li> </ul>
	<ul> <li>SWI will specify the list of <b>approved</b> tools. Prohibited tools to be specified in the 'special precautions' section.</li> </ul>
	• Attached to PTW and stored with paperwork.

H&S RISK TOOLS	WHEN TO APPLY
H&S RISK TOOLS Safe Work Method Statement (SWMS)	<ul> <li>WHEN TO APPLY</li> <li>Document required for high risk construction work (WHS Regulations).</li> <li>Person responsible for carrying out high risk construction work in consultation with workers must prepare the SWMS.</li> <li>SWMS can be generic but must reflect the specific circumstances of the workplace in which it will operate i.e. high-risk construction work.</li> <li>One SWMS can be prepared to cover a variety of tasks if it takes into account the changing nature of the work environment.</li> <li>Task JSEAs or SWIs are to be attached to CS Energy approved SWMS.</li> <li>SWMS should be kept at the workplace where the high-risk construction work will be carried out.</li> <li>Consulting workers is important, so they understand the detail of the SWMS and what they are required to do to implement and</li> </ul>
	<ul> <li>maintain risk controls.</li> <li>Contractors may prepare a SWMS but it must be reviewed by the PCBU and workers undertaking the task.</li> </ul>

#### H&S RISK TOOLS WHEN TO APPLY

#### LEVEL 3 PROJECT/CHANGE/ISSUE BASED RISK ASSESSMENT

Facilitated risk assessment	<ul> <li>To develop a business, department and section's health and safety risk profile</li> </ul>
Operations Plant	• To develop and implement a <b>procedure</b>
	Where identified by Management of Change
	Stakeholder issues/concerns. (e.g. complaints or adverse symptoms)
	Prior to <b>overhauls</b>
	If uncertainty remains as to the effectiveness of controls after a JSEA has been completed
Hazard and Operability Studies (HAZOP)	<ul> <li>At the <b>feasibility stage</b> of projects to identify all potential hazards and risks associated with <b>construction process</b></li> </ul>
Failure Modes and Effects Analysis (FMEA)	<ul> <li>To identify and assess risks during design of equipment and plant</li> </ul>

#### LEVEL 4 ENTERPRISE LEVEL RISK MANAGEMENT

Enterprise risk management Bowtie analysis Formal	<ul> <li>Tier 1,2 – Enterprise Risks (ELT/BOARD)</li> <li>Tier 3 – Operational H&amp;S risks (SLT)</li> <li>Potential for serious injuries or fatalities, major accident hazards</li> </ul>
identification of critical controls and control verifications	• <b>High and Critical Incidents</b> - post incident review of Risk Register and controls from incident investigation

CHANGE MANAGEMENT TOOLS	WHEN TO APPLY
Operations Risk Assessment	An operations risk assessment is used to identify and manage unintended or additional risks associated with planned changes, or when unplanned changes occur, whether permanent, temporary or as the result of incremental change.
Modification Process	The modification process covers the management of changes (modifications) to assets. Plant modifications are required due to new technology, obsolescence, plant performance, reliability, safety, access issues, etc.

### **4 REGISTERED DOCUMENTS**

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Health and Safety Risk Management Procedure	CS-OHS-76	B/D/18/6609
Health and Safety Life Savers	CS-OHS-49	B/D/11/30971
Personal Protective Equipment (PPE)	CS-OHS-50	B/D/12/1363
Hazard / Improvement Reporting	CS-OHS-51	B/D/11/30973
Risk and Compliance Management Framework	CS-RISK-01	B/D/12/63934
Enterprise Risk Management Guideline	CS-RISK-03	B/D/13/11406
Plant Modification	CS-AM-010	B/D/10/7377
HAZOP Guide	CS-AM-024	B/D/12/85976
CS Energy Risk Matrix		B/D/12/62175
Process Safety Risk Management Framework	CS-RISK-08	B/D/16/20702
Serious Injury and Fatality Prevention Procedure	CS-OHS-77	B/D/18/13556
Callide Overhaul	SWMS	F/20/1290
Kogan Major Overhaul OH18 Safe Work Method Statements	SWMS	F/16/5858



# HSMS ELEMENT 5

# AWARENESS AND COMPETENCE

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# 1 All personnel are **aware** of relevant **hazards, risks and controls.**



**Competency levels** and **training needs** are documented for each role performed on a CS Energy site.



Processes are in place to **monitor performance** for employees and contractors.

Workers are **inducted** into CS Energy.

**Statutory training** is identified, completed and recorded for all personnel.

Workers are **trained** for the **roles** they perform.

CS Energy **employees** are **assessed** during the **recruitment** process to ensure suitability in relation to H&S and are formally **monitored** for H&S performance for the duration of employment.

**Contractors** are **assessed** for suitability in relation to H&S and are formally **monitored** for H&S performance for the duration of their contract.

H&S training is **identified, completed and recorded** for all workers.

A formal **Learning Management System (LMS)** is implemented to manage training. **Monitoring, audit and review** occurs on the LMS to ensure all training needs are being met. Below is a breakdown of awareness and competence tools at CS Energy.

TOOLS	WHEN TO APPLY
Inductions	<ul> <li>A Core Safety Induction and Site Safety Induction must be completed before working on a CS Energy site. Visitors must complete the Site Safety Induction only.</li> <li>Inductions are valid for two years for contractors and three years for employees. Certificates are issued from the online CLUI system.</li> <li>A building and fire induction is required at least every two years for permanent residents of that building.</li> </ul>
Recruitment and Contractor Management	<ul> <li>Employees must undergo a pre-employment health assessment prior to appointment to determine any medical conditions that may impact their role.</li> <li>Contractors undergo a prequalification process for H&amp;S as part of our Contractor Management System.</li> <li>Contractor H&amp;S Management Plans are reviewed for compliance before the contract is awarded.</li> <li>A Principal Representative is assigned to all contractors.</li> </ul>
Training Needs	A training needs analysis is conducted for each role at CS Energy. It focuses on what skills and knowledge are required for the worker to perform the job safely and efficiently. A plan for training and development is created and discussed in conjunction with the IAP process.

### TOOLS WHEN TO APPLY VOC is a method of assessment used to Equipment demonstrate a worker's ability to operate Training and Verification of CS Energy owned equipment. Competency VOC must be completed on the following equipment: (VOC) Forklift Elevated Work Platform (EWP) Scissor Lift Buggy • Dozer Slewing Cranes Non-Slewing Cranes Alimak Manitou Bridge and Gantry Crane • Front End Loader Grader Scraper Skid Steer Loader • Truck (Heavy Rigid (HR) / Medium Rigid (MR) / Heavy Combination (HC)) • Fire Truck Moxi Truck. Refer to CS Energy Intranet for a list of site specific equipment. Site subject matter experts are identified to conduct a VOC as required. This equipment is to be operated by competent operators.

TOOLS	WHEN TO APPLY
Equipment Training and Verification of Competency (VOC) (Continued)	CS Energy site contact is to confirm a competency process in is place for all Contractor owned and leased (hired) plant and equipment as specified.
High Risk Work Licence (HRWL)	A high risk work license is required as per the procedure CS-OHS-69.
	Refer to attachment 11 – High Risk Work Licences (HRWL)
Learning Management System (LMS)	The SAP system holds training requirements and records for individuals.

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Verification of Competency	CS-OHS-66	B/D/13/27084
Minimum Training Requirements for High Risk Work	CS-OHS-69	B/D/14/20521
Learning and Development	CS-HR-55	B/D/12/18450





# HSMS ELEMENT 6

# COMMUNICATION AND CONSULTATION

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### **6 OBJECTIVES**



Everyone at CS Energy is aware of their H&S requirements, including processes for worker feedback through **effective communication and consultation.** 



Everyone at CS Energy is encouraged to **participate** in and **contribute** to H&S performance **improvement initiatives.** 



Establish, document, implement and maintain the means and methods of communication to ensure that all **relevant information is communicated** to all levels and functions.

**Actions** and follow up requirements are documented for consultation processes.

### Concerns and complaints are recorded and

investigated appropriately.

Below is a breakdown of the H&S communication and consultation tools at CS Energy.

TOOLS	WHEN TO APPLY
Communication and Consultation Procedure	The different levels of communication between workers at CS Energy, include:
	Direct discussion between workers
	<ul> <li>Identifying hazards and controls for a specific task or situation (e.g. 2x2 or JSEA, work procedure).</li> </ul>
	Planning how to manage a specific hazard.
	Pre-start meetings
	<ul> <li>Identifying feedback loop on current risks for the shift and a feedback loop for all personnel to share any safety matters.</li> </ul>
	Toolbox meetings
	<ul> <li>Provide change information relating to decisions made at Health and Safety Committee (HSC).</li> </ul>
	<ul> <li>Identifying potential H&amp;S concerns when implementing a proposed change.</li> </ul>
	Written notifications e.g. incident notifications
	<ul> <li>Incident investigation outcomes and learnings are shared with CS Energy workers.</li> </ul>

TOOLS	WHEN TO APPLY	
Communication and Consultation Procedure (Continued)	<ul> <li>Health and Safety Committees (HSC)</li> <li>Reviewing a procedure relating to a specific health and safety matter e.g. consultation arrangements, health monitoring arrangements.</li> <li>Planning how to manage a specific change affecting multiple work groups or whole of site.</li> <li>Union groups</li> <li>Discuss and consult on health and safety matters between the Workers and CS Energy.</li> <li>Quarterly Peak Consultative Committee (PCC) meeting.</li> <li>Kogan Creek Consultative Committee (BIC).</li> <li>Business Improvement Committee (BIC).</li> <li>Menagement review</li> <li>Reports prepared and delivered at meetings (meeting minutes with actions assigned, communication packs).</li> </ul>	
Health and Safety Representative (HSR)	The role of the HSR in consultation is to discuss and liaise with concerned workers about anything affecting the H&S of the workforce.	
Issue Resolution	For all H&S concerns and complaints, the process for disagreed matters and issue resolution should be followed to ensure all H&S issues are resolved in a timely manner.	

### **6 REGISTERED DOCUMENTS**

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Health and Safety Consultation and Communication	CS-OHS-74	B/D/17/14081



## hsms Element 7

# OVERHAULS, CONSTRUCTION, DEMOLITION AND COMMISSIONING

### **7 OBJECTIVES**

1

Overhauls, design, construction, demolition and commissioning are managed through the **projects framework.** 

2

All overhauls, construction, demolition and commissioning activities are compliant with **legal requirements.** 



## The design and selection

of new plant, equipment and processes that CS Energy can control or influence, must take into account **H&S risks.**  Below is a breakdown of H&S overhaul and demolition tools at CS Energy.

TOOLS	WHEN TO APPLY
Construction Work	Projects are assessed against the definition of Construction work as defined by the <i>Work Health and</i> <i>Safety Act 2011.</i> For CS Energy, overhauls and major projects where plant is installed are typically classified as construction projects. Construction work requirement under the Act are applicable during these times.
Overhaul and Major Projects	<b>H&amp;S plans</b> are developed for specific projects which outline the approach to manage the risks presented from this work.
	Generally, overhauls are defined as "construction work" under Work Health and Safety Regulation 2011.
	Overhauls have a documented <b>Overhaul</b> <b>Management System (OMS)</b> that ensures that design and procurement specifications are met, and construction, commissioning and handover are in accordance with approved standards and procedures.
	<b>H&amp;S risks</b> for overhauls and major projects are managed following the CS Energy risk management framework, including assessing, controlling, monitoring and reviewing.
Demolition	A <b>demolition plan</b> is documented, approved, incorporates H&S risk management, defines responsibilities and competencies and ensures sites conform to relevant legislation.

## **6 REGISTERED DOCUMENTS**

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Overhaul Management System Manual	CS-OV-00	B/D/16/166

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## HSMS ELEMENT 8

# CONTRACTOR AND VISITOR MANAGEMENT




The **contracting of services**, the purchase, hire or lease of equipment and materials, and activities with **contractors** and **visitors** are carried out so as to **minimise** any adverse H&S consequence. Supplier and contractor **risks** are **identified** and **managed** at all stages of the contractor management system; plan and scope, contractor selection, mobilisation, manage and improve, close out.

Supplier and contractor **performance** is documented, monitored and reported. A principal representative is assigned to all contractors.

Visitors are managed according to the risk profile of the visit.

Below is a breakdown of the contractor and visitor management tools at CS Energy.

TOOLS	
Contractor	Plan and Scope
Process	<ul> <li>develop business case for work</li> </ul>
	<ul> <li>categorise work and identify hazards</li> </ul>
	<ul> <li>develop contracting strategy</li> </ul>
	<ul> <li>develop detailed scope of work.</li> </ul>
	Contractor Selection
	develop and release tender
	<ul> <li>evaluate tender, including the H&amp;S prequalification process</li> </ul>
	select preferred tender
	negotiate and award contract.
	Mobilisation
	<ul> <li>review Management Plans</li> </ul>
	<ul> <li>kick off meeting setting health and safety requirements</li> </ul>
	<ul> <li>site access and familiarisation</li> </ul>
	inductions and training.
	Manage and Improve
	initiate work and monitor
	manage, audit and review
	continuous improvement.
	Close Out
	• finalise and transition.
	Refer to attachment 6 – Contractor Management Flowchart

**8 TOOLS** 

TOOLS	WHEN TO APPLY
Principal Contractor (PC)	Where the contractor is the Principal Contractor for construction projects and CS Energy is the client then the contractor is to work under their HSMS in accordance with <i>Work Health and Safety Regulations 2011</i> and contractual agreement/s. PCs are selected, monitored and managed to ensure safety performance is at a high level.
Hire / Lease Equipment	Plant and equipment hired or supplied is monitored to ensure it does not introduce risks. Hire and lease equipment must be inspected and maintained at determined frequencies.
Visitors	A visitor must be appointed a site host for the duration of the visit. Visitors must undertake an induction before entering site. The correct Personal Protective Equipment (PPE) must be worn by the visitor. A visitor must be clearly identified by wearing an identification tag.

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Visitor Access & Site Tours	CS-OHS-17	B/D/11/30943
Contractor Management Process Roadmap	CS-OHS-67	B/D/13/34119
Contractor Management	CS-OHS-68	B/D/13/34521
Contractor Health and Safety Checklist Guidelines	CS-OHS-TRAIN-8	B/D/11/30978
Site Conditions	CS-SCP-609	B/D/11/28673



HSMS

ELEMENT 9

# INCIDENT, CRISIS AND SECURITY MANAGEMENT





### All incidents are reported immediately and evidence of underreporting is addressed immediately.



### Relevant incidents are **notified internally within a 48 hour period** in a written format.



Notifiable incidents are **notified to external regulators** within specified timeframe.



**Incident investigation** concluded and **learnings** shared within a 30 day period.

### **9 TOOLS**



Systems, plans and teams are in place to effectively respond to **crisis and emergency situations** in order to protect workers and contractors, environment, members of the public, customers.

6

**Security** measures are in place to protect staff, the public, livestock and wildlife from the hazards inherent in its operations and to protect its facilities and staff from attack.

7

Comply with the Queensland Government's requirements for protection of **critical infrastructure** where required. Below is an overview of CS Energy's tools and processes for learning from incidents, crisis and security.

TOOLS	WHEN TO APPLY	
Learning from Incidents Procedure	This procedure details the processes required to effectively report, notify, investigate and learn from incidents. It applies to all health, safety, process safety, environmental, operational and security incidents.	
	Refer to attachment 12 – Learning from Incidents Process	
Incident Management System	<b>SAP</b> is used as the incident reporting and management system.	
Incident Category Matrix	This matrix is used to determine the severity of all incidents, including personal safety and loss of primary containment and the level of investigation required.	
Incident Investigation Standard	<b>5Why / Learning Tree</b> incident reviews are a simple process to highlight probable causes of an incident for category 1 and 2 incidents.	
	<b>Incident Cause Analysis Method (ICAM)</b> <b>investigations</b> are the primary <b>investigation</b> method used for significant health, safety (personal and process), environmental, operational and security incidents. This is the preferred method where the incident involves people interacting with plant or process and is required for all actual or potential Category 3 or 4 incidents.	

**9 TOOLS** 

TOOLS	WHEN TO APPLY	
	<b>Root Cause Analysis (RCA)</b> investigations are the primary investigation method to be used for significant operations incidents. This is the preferred method to identify plant and equipment failure root causes.	
Emergency Response Teams (ERT)	Trained ERT respond to incidents on site to gain control of the incident scene and mitigate any factors as quickly as possible.	
Incident / Crisis Management Teams	The Site Incident Management Team (IMT) mobilises as required to coordinate an effective response and activate recovery or business continuity plans. The Crisis Management Team (CMT) is Brisbane based and prioritises health and safety, environmental protection, preservation of CS Energy's image, reputation and assets.	
Emergency, Crisis and Business Continuity Plans	Emergency Plans are site specific and define responses to foreseeable emergency scenarios and roles and responsibilities for workers and contractors. Crisis Management plans are company specific and align with business continuity requirements and external communication. Business continuity management ensures critical business activities are maintained or recovered in a timely fashion in the event of a disruption. Emergency exercises are conducted regularly at each site to ensure the ERT, IMT and CMT are trained to effectively respond to an emergency.	

TOOLS	WHEN TO APPLY
Security Plans	The security plan details the processes required to identify and control physical security risks, including:
	<ul> <li>specific threat or attack (issue motivated groups / terrorism)</li> </ul>
	theft or damage to assets
	• inadvertent access (pedestrian and vehicle)
	<ul> <li>suspicious mail or packages (bomb threat)</li> </ul>
	prohibited items on site.
	Information security risks:
	espionage or theft of intellectual property
	security of external network
	<ul> <li>integrity and storage of data</li> </ul>
	<ul> <li>hack or unauthorised access to CS Energy secure Information Communication Technology (ICT) network.</li> </ul>
	Minimum security standards for operating sites:
	site perimeter fence
	site hazard fence
	inner perimeter security fence
	outstation fences
	security personnel and perimeter patrols
	main gate
	security lighting
	a security identification card system
	Closed Circuit Television (CCTV)
	controlled building access.

### **© REGISTERED DOCUMENTS**

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Pandemic Response Plan	CS-OHS-41	B/D/11/30964
Injury and Illness Classification	CS-OHS-73	B/D/16/22919
Learning from Incidents	CS-IM-01	B/D/11/45318
Process Safety Management Procedure	CS-RISK-08	B/D/16/20702
Crisis Management Procedure	CS-IM-02	B/D/11/43851
Emergency Response Plan	CS-IM-03	B/D/12/14048
Incident Investigation Standard	CS-IM-04	B/D/14/33498
Emergency Contacts Information	CS-IM-05	B/D/12/13849
Specific Threat or Attack	CS-SBC-02	B/D/12/80275
Operating Site Security	CS-SBC-04	B/D/12/80278
Security Identification Cards	CS-SBC-05	B/D/13/13122
Security Plan	CS-SBC-06	B/D/12/80276
Dealing With Protest Activities	CS-SBC-07	B/D/13/15049
Handling of Suspicious Mail or Packages	CS-SBC-08	B/D/13/15043
Pedestrian and Vehicle Screening	CS-SBC-09	B/D/13/15046
White Level Inspections	CS-SBC-10	B/D/13/15041
Callide Incident Response Procedure	CAL-IM-03	C/D/14/18233

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Kogan Incident Response Management Plan	KA-OHS-07	K/D/15/7343
Rehabilitation – Supervisor Checklist – Callide	R0015 (C)	B/D/16/7865
Rehabilitation – Supervisor Checklist – Brisbane	R0015 (B)	B/D/15/26563
Rehabilitation – Supervisor Checklist – Kogan	R0015 (K)	B/D/15/26560
Business Continuity Management Framework	CS-RISK-09	B/D/16/20271



## HSMS ELEMENT 10

# HEALTH, HYGIENE AND FITNESS FOR WORK





All personnel have the opportunity to **maintain** and **improve wellness**.



Personnel are **assessed** for their **fitness for work** and are protected from health and hygiene hazards associated with their work.



Personnel have access to work related and non-work related **rehabilitation** and **case management**.



We look after each other.

**Hygiene risk assessments** identify health and hygiene risks to the business.

We protect and enhance the health of our workers based on the risk assessment completed by implementing:

- pre-employment health assessments
- health monitoring and surveillance
- hygiene control plans
- workplace rehabilitation and injury management
- fatigue management
- alcohol and other drug programs
- travel management and wellness programs.

Here is a breakdown of the health and hygiene management tools at CS Energy.

TOOLS	WHEN TO APPLY
Health Monitoring and Surveillance	<ul> <li>The exposure risks for similar exposure groups (SEGs) and the health risk profile is defined.</li> </ul>
	<ul> <li>Qualitative and quantitative health risk assessments are completed for identified SEGs.</li> </ul>
	<ul> <li>Hygiene <b>monitoring</b> is conducted according to the risk profile at a defined schedule.</li> </ul>
	<ul> <li>A health surveillance programme is implemented based on health and hygiene analysis.</li> </ul>
	• <b>Exposure data</b> is reported and communicated to those affected and controls are implemented appropriate to the hazard and exposure level.
	• An <b>exposure exceedance</b> is investigated.

10 TOOLS

TOOLS	WHEN TO APPLY
Hygiene Control Plan	<ul> <li>Control Plans are developed for identified hygiene hazards to ensure hygiene risks are controlled and monitored.</li> </ul>
Workplace Rehabilitation	<ul> <li>A Rehabilitation and Return to Work Coordinator is assigned for every injury / illness requiring rehabilitation.</li> <li>All rehabilitation cases (work related and non-work related) are managed in a timely manner.</li> <li>All injuries / illnesses will be treated, liaising with WorkCover and treating practitioners as necessary.</li> </ul>
Fatigue Management	<ul> <li>Workers are educated on the impacts of fatigue.</li> <li>Develop and implement agreed working rosters to ensure adequate opportunity for restorative sleep is provided.</li> <li>Agreed rosters and hours of work are not to be exceeded.</li> <li>Fatigue is to be identified by individuals and that person is assessed, by observation and risk assessment.</li> <li>A person impaired by fatigue must be managed.</li> <li>Work related travel is planned to minimise the risks e.g. Journey Management Plans (JMP).</li> </ul>

TOOLS	WHEN TO APPLY
Pre- employment Health Assessments	<ul> <li>Employees undergo a pre-employment medical examination to ensure they are fit for work, including ongoing monitoring and assessment.</li> <li>Job and role descriptions are used as an indication of capabilities of personnel for the job they are applying for.</li> </ul>
Managing Alcohol and Other Drugs	<ul> <li>Workers are tested for alcohol and other drugs on CS Energy sites to confirm fitness for duty.</li> <li>Testing can occur by random, after an incident, for cause or as a result of reasonable suspicion, voluntary self-testing and pre-employment testing.</li> <li>Testing will be conducted by a suitably trained, qualified collector.</li> <li>Workers with positive alcohol and/or other drugs must be managed.</li> </ul>
Wellness	<ul> <li>First aid facilities are provided appropriate to the hazard and exposure level.</li> <li>Wellness programs are identified based on the risk profile of the business. Identified programs include Mates In Energy (MIE), Employee Assistance Program (EAP), voluntary annual health checks and campaigns.</li> <li>MIE program: Enquiries to site Connectors who are trained to support and refer people to best help for their situation.</li> <li>MIE hotline: <b>1300 642 111</b> (24 hours freecall)</li> <li>EAP: Assure Programs to speak confidentially to a counsellor call: <b>1800 808 374</b> (24 hours freecall)</li> </ul>

TITLE	CS DOCUMENT ID	TRIM REFERENCE
FI	TNESS FOR WORK	
Health Hazard Exposure Management Procedure	CS-OHS-75	B/D/17/17210
Pre-Employment Health Assessments	CS-HR-70	B/D/11/30938
Fatigue Management	CS-OHS-12	B/D/11/30940
BAC Self Assessment Using an Alcoliser	CS-OHS-39	B/D/11/30962
Managing Alcohol and Other Drugs	CS-OHS-42	B/D/11/30965
Conducting Alcohol and Other Drug Tests	CS-OHS-44	B/D/11/30967
Workplace Rehabilitation and Workcover Claims	CS-OHS-04	B/D/11/30963
Flexible Working Arrangements – Working form Home	CS-OHS-65	B/D/13/22037

#### **WORKING IN HEAT / UV EXPOSURE**

Working in Heat	CS-OHS-24	B/D/11/30949
	DUST	
Management of Respirable Dust	KA-OHS-24	K/D/19/24986
Management of Respirable Dust at Callide Power Station	CAL-OHS-014	C/D/19/8935

TITLE	CS DOCUMENT ID	TRIM REFERENCE		
HAZARDOUS MANUAL TASKS				
Identifying and Assessing Hazardous Manual TasksCS-OHS-57B/D/12/84199				
ASBESTOS CONTAINING MATERIALS (ACM)				
Asbestos Management Plan	CS-OHS-43	B/D/11/30966		
PANDEMIC RESPONSE				
Pandemic Response Plan	CS-OHS-41	B/D/11/30964		



## HSMS Element 11

# DOCUMENTATION AND RECORDS

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**Documents** and **data** that relate to H&S are **controlled** to ensure that the information is **correct** and that **up to date** copies are **readily available** to those who need to use them.



A **HSMS** is a document that demonstrates how the organisation meets its H&S commitment.

H&S documents and records undergo **document management** in the **TRIM** system.

H&S documents are **identified**, **current** and **readily retrievable**, **archived** and made **obsolete** if not required. Below is a breakdown of the document and record tools at CS Energy

TOOLS	WHEN TO APPLY
Document and Records Control	<ul> <li>Personnel have access to and record all H&amp;S documents and records in the document management system, TRIM.</li> </ul>
	• A periodic review is completed for all H&S documents.
	Develop H&S document.
	Review with content experts.
	<ul> <li>Approve after consultation with the workforce, document owner assigned.</li> </ul>
	<ul> <li>Change management, identify changes and impacts.</li> </ul>
	Release document and communicate release.
	<ul> <li>Processes are necessary to ensure documents from external sources (e.g. Safety Data Sheets (SDS), Australian Standards) are formally managed, current and in a suitable format.</li> </ul>
	<ul> <li>Processes ensure H&amp;S records, medical surveillance and occupational exposure records be identified, securely stored, readily located and retrievable.</li> </ul>
	A current document register is maintained.
	<ul> <li>Updated or superceded documents are to be archived for audit and verification purposes.</li> </ul>

TOOLS	WHEN TO APPLY
Archive and Disposal	H&S records must be retained and / or disposed of in accordance with the approved Retention and Disposal Schedules. Archiving or disposal can be done via the TRIM system or by archiving off site.

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Retention and Disposal – Destruction of Physical Records	CS-DRM-01	B/D/12/12861
Archive Management – Physical Records	CS-DRM-02	B/D/09/15089



## HSMS ELEMENT 12

# MONITORING, AUDIT, MANAGEMENT REVIEW AND REPORTING

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### H&S performance is regularly measured, monitored, recorded and analysed with results reported to stakeholders and others as appropriate.



**Management review** processes and identify non-conformances and prioritise risk management strategies for the business.



Assurance program in place that includes regular assurance reviews and an internal H&S assurance program, to review the execution of the HSMS and compliance with Work Health and Safety legislation. Here is a breakdown of H&S monitoring, audit, management review tools at CS Energy.

TOOLS	WHEN TO APPLY
H&S Performance Dashboards	<ul> <li>Incident management and leading indicator dashboards in the <b>Business Intelligence</b> portal.</li> <li>Monthly review of health and safety events and issues and assessments of the effectiveness of the HSMS.</li> </ul>
H&S Committees (site)	• H&S Committees are in place to <b>review</b> H&S actions arising from incidents, new documents and procedures, actions arising from relevant inspections and audits and any other H&S matter deemed relevant to be discussed to reach a decision.
Internal H&S Assurance program	H&S team operates an assurance program to check the health of the HSMS.
Assurance Plan	<ul> <li>A risk based annual assurance plan is developed by the Assurance team. It includes a continuous assurance program for H&amp;S and other H&amp;S related assurance reviews on a periodic basis.</li> </ul>

TOOLS	WHEN TO APPLY
Central HSE and People and Safety Board Committee	<ul> <li>Central Health, Safety and Environment (HSE) and People and Safety Board Committee are in place to conduct a <b>strategic review</b> of H&amp;S events and issues across the portfolio.</li> </ul>
Annual Review	<ul> <li>High level review of previous year's performance and status of HSMS through incident review, audit and assurance activities, legislation review and other business activity changes.</li> </ul>
Quarterly Business Review Plan	<ul> <li>Mid-level review of the business performance in previous quarter for various divisions including health and safety.</li> </ul>
Reports	<ul> <li>The following reports are developed for management to evaluate and manage the HSMS' effectiveness.</li> <li>Annual Report</li> <li>Quarterly Business Reports</li> <li>Monthly Performance Reports.</li> </ul>

#### **12 REGISTERED DOCUMENTS**

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Assurance	CS-AUD-1	B/D/12/3134

### **REGISTERED DOCUMENTS**



1	PREVENTING SERIOUS INJURY AND FATALITY	165
2	PROCESS SAFETY	169
3	OPERATIONAL HAZARDS	170
4	HEALTH HAZARDS	171
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CS Energy's HSMS is continually updated throughout each year. Please refer to the Health and Safety section on the intranet for current registered documents and documents under consultation.

TITLE	CS DOCUMENT ID	TRIM REFERENCE		
1. CONFINED SPACES				
Working in Confined Spaces	CS-PTW-HAZ-03	B/D/11/39828		
Confined Space Declassification	CS-PTW-SOP-07	B/D/13/4385		
CCV SIF Hazard Confined Spaces	S2291	B/D/19/15923		
2. CRANES AND LIFTING				
Cranes and Lifting	CS-OHS-79	B/D/17/7986		
CCV SIF Hazard Cranes and Lifting	S2282	B/D/19/15924		
3. DROPPED OBJECTS				
Barricades and Signage	CS-OHS-36	B/D/12/11085		
Scaffolding	CS-OHS-70	B/D/14/22741		
Working at Heights	CS-PTW-HAZ-02	B/D/11/19581		
CCV SIF Hazard Dropped Objects	S2284	B/D/19/15921		
4. WORKING WITH ELECTRICITY				
Electrical Safety Management	CS-OHS-31	B/D/11/30957		
CCV SIF Hazard Working with Electricity	S2288	B/D/19/15916		

#### **1 PREVENTING SERIOUS INJURY AND FATALITY**

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Maintenance and Testing of Entity Works, Electrical Installations and Electrical Equipment	CS-OHS-32	B/D/11/30958
Maintenance and Testing of Portable Electrical Equipment	CS-OHS-33	B/D/11/30959
Selection, Maintenance and Use of Electrical Safety Equipment and PPE	CS-OHS-34	B/D/11/30960
Multiple Supply Electrical Equipment Isolation and Access	CS-OHS-53	B/D/11/48694
Single Feed Electrical Isolation and Access	CS-OHS-56	B/D/12/762
CCV SIF Hazard Working with Electricity	S2288	B/D/18/15916

#### 5. WORKING WITH ENERGY (ISOLATION PERMIT TO WORK (PTW))

Permit to Work Manual	CS-PTW-01	B/D/11/19582	
Permit to Work Definitions	CS-PTW-02	B/D/11/19579	
Permit to Work (PTW) Reference Documentation	CS-PTW-03	B/D/11/19580	
Multiple Officers in Charge of Work	CS-PTW-SOP-03	B/D/11/45320	
Use of International Technical Experts on Site	CS-PTW-SOP-04	B/D/11/19577	
Permission to Perform Minor Tasks on Live Plant	CS-PTW-SOP-05	B/D/11/19575	
Change Management in PTW System	CS-PTW-SOP-06	B/D/12/10395	
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TITLE	CS DOCUMENT ID	TRIM REFERENCE	
CCV SIF Hazard PTW	S2285	B/D/19/15919	
6. HAZ	ARDOUS CHEMICALS		
Hazardous Chemicals and Regulated Waste	CS-OHS-08	B/D/11/30976	
Dispatch for Transport of Dangerous Goods	CS-OHS-15	B/D/11/30942	
CCV SIF Hazard Hazardous Substances	S2283	B/D/19/15922	
7. \	WORK AT HEIGHTS		
Working at Heights	CS-PTW-HAZ-02	B/D/11/19581	
CCV SIF Hazard Work at Heights	S2286	B/D/19/15918	
7A. LADDERS			
Ladders	CS-OHS-52	B/D/12/1362	
7	B. SCAFFOLDING		
Scaffolding	CS-OHS-70	B/D/14/22741	
CCV SIF Hazard Scaffolding	S2290	B/D/19/15914	
8. HOT WORK			
Hot Work	CS-PTW-HAZ-01	B/D/11/19573	
CCV SIF Hazard Hot Work	S2289	B/D/19/15915	
8B. WELDING			
Pressure Welding Procedure and Recording System	CS-WELD-1002	B/D/08/3091	

### **1 PREVENTING SERIOUS INJURY AND FATALITY**

TITLE	CS DOCUMENT ID	TRIM REFERENCE		
9. VE	9. VEHICLE INTERACTION			
Work Related Travel and Accommodation	CS-HR-31	B/D/12/17845		
CCV SIF Hazard Vehicle Interaction	S2287	B/D/19/15917		
9A. JOURNEY MANAGEMENT				
Journey Management	CS-OHS-72	B/D/19/13792		
9B. CHAIN OF RESPONSIBILITY				
Chain of Responsibility	CS-OHS-78	B/D/19/356		
Loading/Unloading Checklist	S2272	B/D/18/26036		



TITLE	CS DOCUMENT ID	TRIM REFERENCE
PROCESS SAFETY		
Process Safety Management	CS-RISK-08	B/D/20702

### **3 OPERATIONAL HAZARDS**

TITLE	CS DOCUMENT ID	TRIM REFERENCE	
2. BARI	RICADES AND SIGNAG	E	
Barricades and Signage	CS-OHS-36	B/D/12/11085	
3A. BUILDING PENETRATION			
Digging Excavation and Building Penetration	CS-PTW-HAZ-04	B/D/11/19576	
6. MANUAL HANDLING TASKS			
Identifying and Assessing Hazardous Manual Tasks	CS-OHS-57	B/D/12/84199	
12. STRUCTURAL INTEGRITY			
Plant Modification	CS-AM-010	B/D/10/7377	



TITLE	CS DOCUMENT ID	TRIM REFERENCE
1. ASBESTOS CONTAINING MATERIALS (ACM)		
Asbestos Management Plan	CS-OHS-43	B/D/11/30966
	2. DUST	
Management of Respirable Dust	KA-OHS-24	K/D/19/24986
Management of Respirable Dust at Callide Power Station	CAL-OHS-014	C/D/19/8935
3. WORKING IN HEAT / UV EXPOSURE		
Working in Heat	CS-OHS-24	B/D/11/30949
4. FITNESS FOR WORK		
Pre-Employment Health Assessments	CH-HR-70	B/D/11/30938
Fatigue Management	CS-OHS-12	B/D/11/30940
BAC Self Assessment Using an Alcoliser	CS-OHS-39	B/D/11/30962
Managing Alcohol and Other Drugs	CS-OHS-42	B/D/11/30965
Conducting Alcohol and Other Drug Tests	CS-OHS-44	B/D/11/30967
Workplace Rehabilitation and Workcover Claims	CS-OHS-04	B/D/11/30963
Flexible Working Arrangements – Working from Home	CS-OHS-65	B/D/13/22037

### **11. WORKPLACE MEASURING AND MONITORING**

Health Hazard Exposure	CS-04S-75	B/D/17/17210
Management Procedure	03-013-73	D/D/11/11210

### **5 HEALTH AND SAFETY MANAGEMENT SYSTEM**

TITLE	CS DOCUMENT ID	TRIM REFERENCE		
1. LEADERS	1. LEADERSHIP AND ACCOUNTABILITY			
Conducting Safety Interactions	CS-OHS-19	B/D/11/30945		
Conducting Workplace Inspections	CS-OHS-20	B/D/11/30947		
Guidelines for Contractor Health and Safety Plans	CS-OHS-27	B/D/11/30952		
Fair and Just Culture	CS-OHS-47	B/D/11/30969		
Recruitment and Selection	CS-HR-4	B/D/12/18413		
Health and Safety Policy		B/D/11/39698		
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#### 2. LEGAL REQUIREMENTS

Petroleum and Gas Safety Management	CS-OHS-02	B/D/11/30946
CS Energy Legal Health and Safety Compliance Manual	CS-OHS-M-02	B/D/12/16045
Governance Framework Standard	CS-GOV-01	B/D/13/34513

#### 4. H&S RISK AND CHANGE MANAGEMENT

Health and Safety Risk Management Procedure	CS-OHS-76	B/D/18/6609
Health and Safety Life Savers	CS-OHS-49	B/D/11/30971
Personal Protective Equipment (PPE)	CS-OHS-50	B/D/12/1363
Hazard / Improvement Reporting	CS-OHS-51	B/D/11/30973
Risk and Compliance Management Framework	CS-RISK-01	B/D/12/63934



TITLE	CS DOCUMENT ID	TRIM REFERENCE
Enterprise Risk Management Guideline	CS-RISK-03	B/D/13/11406
Plant Modification	CS-AM-010	B/D/10/7377
HAZOP Guide	CS-AM-024	B/D/12/85976
CS Energy Risk Matrix		B/D/12/62175
Process Safety Risk Management Framework	CS-RISK-08	B/D/16/20702
Serious Injury and Fatality Prevention Procedure	CS-OHS-77	B/D/18/13556
Callide Overhaul	SWMS	F/20/1290
Kogan Major Overhaul OH18 Safe Work Method Statements	SWMS	F/16/5858

### **5. AWARENESS AND COMPETENCE**

Verification of Competency	CS-OHS-66	B/D/13/27084
Minimum Training Requirements for High Risk Work	CS-OHS-69	B/D/14/20521
Learning and Development	CS-HR-55	B/D/12/18450

### 6. COMMUNICATION AND CONSULTATION

Health and Safety Consultation and Communication	CS-OHS-74	B/D/17/14081
7. OVERHAULS, CONSTRUC	TION, DEMOLITION A	ND COMMISSIONING
Overhaul Management		

## **5 HEALTH AND SAFETY MANAGEMENT SYSTEM**

TITLE	CS DOCUMENT ID	
8. CONTRACTOR AND VISITOR MANAGEMENT		GEMENT
Visitor Access & Site Tours	CS-OHS-17	B/D/11/30943
Contractor Management Process Roadmap	CS-OHS-67	B/D/13/34119
Contractor Management	CS-OHS-68	B/D/13/34521
Contractor Health and Safety Checklist Guidelines	CS-OHS-TRAIN-8	B/D/11/30978
Site Conditions	CS-SCP-609	B/D/11/28673
9. INCIDENT, CRIS	SIS AND SECURITY MA	NAGEMENT
Pandemic Response Plan	CS-OHS-41	B/D/11/30964
Injury and Illness Classification	CS-OHS-73	B/D/16/22919
Learning from Incidents	CS-IM-01	B/D/11/45318
Process Safety Management Procedure	CS-RISK-08	B/D/16/20702
Crisis Management Procedure	CS-IM-02	B/D/11/43851
Emergency Response Plan	CS-IM-03	B/D/12/14048
Incident Investigation Standard	CS-IM-04	B/D/14/33498
Emergency Contacts Information	CS-IM-05	B/D/12/13849
Specific Threat or Attack	CS-SBC-02	B/D/12/80275
Operating Site Security	CS-SBC-04	B/D/12/80278
Security Identification Cards	CS-SBC-05	B/D/13/13122
Security Plan	CS-SBC-06	B/D/12/80276



TITLE	CS DOCUMENT ID	TRIM REFERENCE
Dealing With Protest Activities	CS-SBC-07	B/D/13/15049
Handling of Suspicious Mail or Packages	CS-SBC-08	B/D/13/15043
Pedestrian and Vehicle Screening	CS-SBC-09	B/D/13/15046
White Level Inspections	CS-SBC-10	B/D/13/15041
Callide Incident Response Procedure	CAL-IM-03	C/D/14/18233
Kogan Incident Response Management Plan	KA-OHS-07	K/D/15/7343
Rehabilitation – Supervisor Checklist – Callide	R0015 (C)	B/D/16/7865
Rehabilitation – Supervisor Checklist – Brisbane	R0015 (B)	B/D/15/26563
Rehabilitation – Supervisor Checklist – Kogan	R0015 (K)	B/D/15/26560
Business Continuity Management Framework	CS-RISK-09	B/D/16/20271

### **10. HEALTH, HYGIENE AND FITNESS FOR WORK**

Health Hazard Exposure Management Procedure	CS-OHS-75	B/D/17/17210
Pre-Employment Health Assessments	CS-HR-70	B/D/11/30938
Fatigue Management	CS-OHS-12	B/D/11/30940
BAC Self Assessment Using an Alcoliser	CS-OHS-39	B/D/11/30962
Managing Alcohol and Other Drugs	CS-OHS-42	B/D/11/30965

### **5 HEALTH AND SAFETY MANAGEMENT SYSTEM**

TITLE	CS DOCUMENT ID	TRIM REFERENCE
Conducting Alcohol and Other Drug Tests	CS-OHS-44	B/D/11/30967
Workplace Rehabilitation and Workcover Claims	CS-OHS-04	B/D/11/30963
Flexible Working Arrangements – Working form Home	CS-OHS-65	B/D/13/22037
Working in Heat	CS-OHS-24	B/D/11/30949
Management of Respirable Dust	KA-OHS-24	K/D/19/24986
Management of Respirable Dust at Callide Power Station	CAL-OHS-014	C/D/19/8935
Identifying and Assessing Hazardous Manual Tasks	CS-OHS-57	B/D/12/84199
Asbestos Management Plan	CS-OHS-43	B/D/11/30966
Pandemic Response Plan	CS-OHS-41	B/D/11/30964

### **11. DOCUMENTATION AND RECORDS**

Retention and Disposal – Destruction of Physical Records	CS-DRM-01	B/D/12/12861
Archive Management – Physical Records	CS-DRM-02	B/D/09/15089

### 12. MONITORING, AUDIT, MANAGEMENT REVIEW AND REPORTING

Assurance	CS-AUD-1	B/D/12/3134
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## 1 ACRONYMS

ACRONYM	MEANING
2x2	Personal Task Risk Analysis
4WD	4 Wheel Drive
АСМ	Asbestos Containing Material
BrAC	Breath Alcohol Concentration
ВСР	Business Continuity Plan
BIC	Business Improvement Committee
CAPEX	Capital Expenditure
ССТУ	Closed Circuit Television
CCV	Critical Control Verification
CEO	Chief Executive Officer
СМТ	Crisis Management Team
CSE	CS Energy
dB	Decibel
ELT	Executive Leadership Team
ERT	Emergency Response Team
ERM	Enterprise Risk Management
FAI	First Aid Injury
FMEA	Failure Modes and Effects Analysis
FOPS	Fall Over Protection System
H&S	Health and Safety
HAZOP	Hazard and Operability Study
НС	Heavy Combination

### 1 ACRONYMS

ACRONYM	MEANING
HRWL	High Risk Work Licence
HR	Heavy Rigid
HSC	Health and Safety Committee
HSE	Health, Safety and Environment
HSMS	Health and Safety Management System
HSR	Health and Safety Representative
HVLP	High Volume Low Pressure
IAP	Individual Achievement Plan
ICAM	Incident Cause Analysis Method
ІСТ	Information Communications and Technology
ІМТ	Incident Management Team
JMP	Journey Management Plan
JSEA	Job Safety Environment Analysis
ксс	Kogan Creek Consultative Committee
kPa	Kilopascal
КРІ	Key Performance Indicator
LAeq	Noise level using the A weighting logarithmic value
LC	Peak threshold noise level
LMS	Learning Management System
LOC	Loss of Containment
LOPC	Loss of Primary Containment
LPG	Liquefied Petroleum Gas

ACRONYM	MEANING
LTI	Lost Time Injury
МАН	Major Accident Hazard
MIE	Mates in Energy
MR	Medium Rigid
МТІ	Medical Treatment Injury
MUTCD	Queensland Manual of Uniform Traffic Control Devices
NDT	Non Destructive Testing
OEL	Occupational Exposure Level
OEM	Original Equipment Manufacturer
OIC	Officer In Charge
OMS	Overhaul Management System
OPEX	Operational Expenditure
PC	Principal Contractor
PCBU	Person Conducting a Business or Undertaking
PCC	Peak Consultative Committee
PFD	Personal Flotation Device
PICW	Person In Charge of Work
PPE	Personal Protective Equipment
PPI	Project Plan Initiatives
PRA	Personal Risk Assessment
PTW	Permit to Work
PTWO	Permit to Work Officer

### 1 ACRONYMS

ACRONYM	MEANING
RCA	Root Cause Analysis
RCD	Residual Current Device
ROPS	Roll Over Protection Structure
RSO	Radiation Safety Officer
RSPP	Radiation Safety and Protection Plan
SAP	System Applications Products
SDS	Safety Data Sheet
SEG	Similar Exposure Group
SIF	Serious Injury and Fatality
SIPP	Stop, Identify, Plan to be safe, Proceed
SLT	Senior Leadership Team
SPTWO	Senior Permit to Work Officer
STRATEX	Strategic Expenditure
SWI	Standard Work Instruction
SWMS	Safe Work Method Statement
TRIM	Total Record Information Management
UV	Ultraviolet Radiation
VoC	Verification of Competency
VRD	Voltage Reducing Device
WCA	Work Clearance Application
WCM	Work Clearance Management (SAP PTW Module)
WHS	Work Health and Safety
WHSQ	Work Health and Safety Queensland



# Take the LEAD on Safety

# DOWNLOAD AND INSTALL

# The app today!

### It's a **FASTER** and **EASIER** way to record:

- Hazards
- Safety interactions
- Inspections
- Journey Management Plans and more!

Go to the Health & Safety section of the CS Energy intranet for instructions on how to download the app.

Go to: Home > Safety and Environment > I want to > Download the LEAD App

LEAD is available for Apple and Android devices.





### **3 PERSONAL PROTECTIVE EQUIPMENT (PPE)**

# SAFETY HELMET

Helmets must be selected in accordance with AS/ NZS 1800.

General multipurpose use (all sites)

**YELLOW** Evacuation Warden (all sites)

**RED** Emergency Response Team (Kogan)

GREEN Emergency Response Team (Callide)

BLUE
Security (Callide)
 ORANGE

Visitors (all sites)



# EAR PROTECTION

Hearing protection must be selected in accordance with AS/NZS 1270.



## **SAFETY BOOTS**

Protective toe capped safety footwear must comply with AS 2210.

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SAFETY GLASSES

Glasses must be selected in accordance with AS/ NZS 1337 (medium impact). Sealed eye protection (mono-goggles or enclosed eye protection such as foam backed) is to be carried on each person while outside of the administration precinct area in coal fired plant only.

# SAFETY GLOVES

Safety gloves must be carried by each person while on site outside administration precinct areas.

# REFLECTIVE SHIRT AND LONG PANTS

Clothing must comply with AS/NZS 4602.1-2011. Other clothing may be required depending on the task being performed e.g. coveralls.

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CONSEQUENCE SCALE	6. Catastrophic	Single or Multilple fatalities. Stolen or impaired asset resulting in plant shurdown.	Very large contaminant release, extensive off-site area affected.	Significant and recurring negative media attention on a national level.	
	5. Severe	Permanent disability or other injury requirement hospitalisation or long term treatment. Stolen or impaired asset that restricts operations.	Large contaminant release or land disturbance, localised off-site.	Significant and recurring negative state wide media and/ or parliamentary attention.	
	4. Major	Reversible disability or impairment including medium term medical treatment. Stolen or impaired asset that does not restrict operations	Large contaminant release or land disturbance, localised off-site.	Significant negative state wide media and/ or parliamentary attention.	
	3. Medium	Impairment including short term medical treatment (e.g MTI) Security breach with low level impact.	Moderate contaminant release or land disturbance, localised on-site.	Isolated negative state wide media coverage.	
	2. Low	Low level, short term injury (e.g. first aid). Detected security breach with nor impact to assets.	Moderate contaminant release or land disturbance, localised on-site.	Key stakeholders exercise their authority in response to the issue.	
	1.Minor	Incident with no injury sustained. Minor non- conformance to security requirements.	Small contaminant release or land disturbance, localised on-site area affected.	Community/ stakeholder concents can be dealt with via normal engagement.	
	CATEGORY	SAFETY & SECURITY	ENVIRONMENTAL	REPUTATION/ STAKEHOLDER RELATIONS (INTERNAL & EXTERNAL)	

6 Catastrophic	Ŧ	Ŧ	Ŧ	w	W
5 Severe	Ŧ	Ŧ	v	×	
4 Major	Ŧ		ω	×	
3 Medium	υ	ω	¥		_
2 Low	M	¥			
1 Minor					
Level of Risk Calculator	Highly Likely	Likely	Possible	Unlikely	Rare
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### **4A HIERARCHY OF CONTROLS**



## THE CONTROLS



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### **ELIMINATION**

Remove the hazard from the workplace, task, process, method or material.

#### **MOST EFFECTIVE**



**SUBSTITUTION** Replace the activity, process, material or substance with a less hazardous one.



**ENGINEERING** (Separation or redesign) Isolate the hazard by using mechanical aids, barriers, machine guarding, ventilation, insulation, space or time.

### **ADMINISTRATION**

Establish policies, procedures, work practices and training programs to reduce exposure to risk.



DANGER

#### PPE

Provide suitable and properly maintained PPE to protect persons from hazards.



LEAST EFFECTIVE

### **5 PERMIT TO WORK (PTW) AND ISOLATION PROCESS**



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### **5A PERMIT TO WORK (PTW) WORKFLOW**

### **PLANNING FOR THE WORK**



- Work order
- Is a PTW required? (Interaction with plant requiring an isolation or high risk work?)

### **EXECUTING THE WORK**



Refer to CS-PTW-01 PTW Manual

### **MINOR TASK PROCEDURE – PTW**



**Definition: Minor Task:** Access to equipment for fault finding and maintenance cannot always be obtained within the normal guidelines under the PTW system:

**a)** The process of fault finding, repair or maintenance may require the system to be powered up and operable which inherently prevents isolation.

**b)** To allow low risk work to be performed that requires communication network to be established with the plant control room to ensure safety of people and plant.

**c)** Work is of a routine basis where the risk to plant and personnel is low and can be managed by the person carrying out the task.

This procedure does not apply to inspection tasks where the area contains designed access ways and presents minimal hazards. Entry into areas where known hazards exist must be managed through the site authorisation process in conjunction with the person performing the task, providing awareness to the Unit Operator.

#### **Process Conditions**

- The Operator of the plant has authority to permit or dismiss the minor task application
- Worker does not require OIC status
- As a minimum a 2x2 must be completed for the task
- The Worker must sign the logbook prior to task commencing
- The permit is only valid for the maximum duration of the current operating shift
- The permit is not transferable, any change will result in a new application

### **STEP 1: PLAN AND SCOPE**

#### **Contract Initiator And Contracts Procurement**

- 1. Develop Business Case for Work
- 2. Complete PF194 Request for Supply and Contract Services
- 3. Develop Contracting Strategy
- 4. Develop relevant Project Management forms

### **STEP 2: CONTRACTOR SELECTION**

#### **Contract Initiator, H&S And Contracts Procurement**

- 1. Develop and Release Tender
- 2. Evaluate Tender
- 3. Select Preferred Tender
- 4. Negotiate and Award Contract

#### **STEP 3: MOBILISATION**

#### **1. Before Contractor Arrives**

- Request contractor plans for work and review site specific H&S requirements.
- Prepare for contractor arrival site access, contract, logistics, projects dates, purchase orders, work packs, Safe Work Method Statements (SWMS) and High Risk Work Licenses (HRWL) for work submitted.
- Conduct kick off meeting review and authorise SWMS / Job Safety Environment Analysis (JSEA), inspect and authorise equipment registers, hazardous chemicals approval, requests for Permit to Work (PTW), readiness assessment for work.

#### 2. Mobilisation

- Site access organised, online site induction, additional site-specific inductions completed and copies of HRWL.
- Conduct site familiarisation session with the contract group using Form S2167.
- Review agreed logistics and site facilities (laydown, vehicle amenities etc.).
- PTW, emergency plans and other applicable permits to perform work checked and in place.
- Competent trade persons / operators checked and Verification of Competency (VOC) process conducted for CS Energy owned equipment.



### **STEP 4: MANAGE**

### 1. Initiate Work And Monitor

- Conduct or attend daily prestart or toolbox meetings.
- Verify work activity is in accordance with PTW system.
- Ensure SWMS / JSEA / 2x2 are conducted to manage risk associated with change to task or environment.
- Report and investigate all incidents.
- Ensure that changes in plant are managed with CS-AM-010 Plant Modification Procedure or Operations Risk Assessment process.

#### 2. Manage, Audit And Report

- Audit critical controls (Critical Control Verifications – Lead App).
- Contractor Reporting as per agreed intervals in the contract (provide H&S performance reports including subcontractors to H&S).
- Conduct review / Key Performance Indicator (KPI) meeting with contractor as per agreed intervals in the contract.

#### 3. Continuous Improvement

 Identify and consider improvement opportunities.

#### **STEP 5: CLOSE OUT**

### **1. Finalisation And Transition**

- Plan contract transition: Assess completed work & contractor performance (including subcontractors) for H&S, quality, cost and time.
- Negotiate any outstanding commercial issues. Include Procurement team.
- De-mobilise the Contractors (ID Cards and Vehicle access, PTW locks to be handed in to security).

- Complete the close out report & update Contractor performance records (TRIM / SAP).
- Update lessons learned and save to TRIM.
- Evaluate contractor claims.
- SAP closeout.

# In an emergency call triple five (555) on an internal site phone for emergency response.



### Danger

Ensure the area is safe for yourself, others and the casualty.

• Ensure surrounding electrical equipment is isolated.



### Response

Check for response – open eyes – ask name – squeeze hands.

**No Response:** Send for help as below.

**Response:** Make comfortable, check for injuries, monitor response.





Send for help Call triple five (555) for emergency response or ask another person to make the call. State:

- Type of emergency
- Condition of person
- Specific location
- Contact number

SITE NUMBER TO CALL			
Callide	4992 9444		
Kogan	4665 2555		
Brisbane	3854 7777		

#### Learn more at the Australian Resuscitation Council www.resus.org.au

CS Energy encourages first aid training as this information is not a substitute for first aid training.



### **Airway**

**Open mouth** 

- If foreign material is present:
- Place in the recovery position
- Clear airway with fingers

Open airway by tilting head with chin lift.







### **Breathing**

Check for breathing - look. listen and feel.

Not normal breathing: Start CPR.

Normal breathing: Place in recovery position, monitor breathing, manage injuries, treat for shock.





### **CPR**

#### Start CPR - 30 chest compressions: 2 breaths

Compressions one third (1 / 3) of the depth of chest.

Continue CPR until help arrives or casualty recovers.







### **Defibrillation**

### Apply defibrillator

If available and follow voice prompts.

### **8 PASS FIRE**

### **OPERATING YOUR FIRE EXTINGUISHER**







2. Aim at the base



**3. Squeeze the trigger** 



4. Sweep

### REMEMBER

- Test extinguisher before approaching the fire
- Keep low and approach with the wind at your back
- Back away, watching for rekindle

### FIRE EXTINGUISHER TYPES

EXTINGUISHER		TYPES OF FIRE					
Colour	Туре	Solids (wood, paper, cloth, etc.)	Flammable Liquid	Flammable Gasses	Electrical Equipment	Cooking Oils & Fats	Special Notes
	Water	~	×	×	×	×	Dangerous if used on 'liquid fires' or live electricity
	Dry Powder	~	~	×	×	~	Not practical for home use
	Foam	~	~	~	~	×	Safe use up to 1000v
	Carbon Dioxide (CO <sub>2</sub> )	×	~	×	~	~	Safe on high and low voltages

### **<b>WASTE DISPOSAL**



### **UNSURE? ASK YOUR ENVIRONMENTAL TEAM**



This Calculator provides a common benchmark in the classification of the potential consequence of a dropped object.



### 0.1M TO 100M / 0KG TO 10KG
#### CONSIDERATIONS

- With light objects (<0.1 kg) a key influencing factor is the effect of an object punching the skin and damaging tissue / organic functions. The calculator assumes a blunt object so is not compatible with broken glass, metal shards etc.
- The wearing of standard PPE, eg hard hat, safety boots and eye protection, is assumed in the calculator.
- Do not subtract the height of an individual, measure fall distance to solid deck / ground level.
- DROPS Calculator and other similar tools are guides only providing cursory indication of possible outcome – they are not an accurate prediction.
- In reality, even a small object falling from height can be lethal.
- Dropped Object Cone Calculator B/D/18/6006



### 1.0M TO 100.0M / 0.1KG TO 1.0KG

# 11 HIGH RISK WORK LICENCES (HRWL)

ТҮРЕ	LICENSE	COMPETENCY
Tower Crane	СТ	CPCCLTC4001
Self-erecting Tower Crane	CS	CPCCLTC4002
Derrick Crane	CD	TLILIC3004
Bridge and Gantry Crane with more than 3 functions	СВ	TLILIC3003
Bridge and Gantry Crane with 3 or less functions	Nil	CB-HRWL or; DG-HRWL or LBG (EPC) or either one of the following OHSCER210A/ RIIHAN305A/ MNCG1040A
Vehicle Loading Cranes with a capacity of 10 metre tonnes or more	CV	TLILIC0012
Non-Slewing Mobile Crane with a capacity exceeding 3 tonnes	CN	TLILIC3006
Slewing Mobile Crane with a capacity up to 20T	C2	TLILIC3008 This licence also encompasses: • Non- Slewing Crane (CN) • Vehicle Loading Crane (CV)

ТҮРЕ	LICENSE	COMPETENCY
Slewing Mobile Crane with a capacity up to 60T	C6	TLILIC4009 This licence also encompasses: • 20 tonnes or less (C2) • Non-Slewing Mobile Crane (CN) • Vehicle Loading Crane (CV)
Slewing Mobile Crane with a capacity up to 100T	C1	TLILIC4010 This licence also encompasses: • 60 tonnes or less – C6 • 20 tonnes or less – C2 • Non-slewing mobile crane – CN • Vehicle loading crane – CV
Slewing Mobile Crane with a capacity over 100T	CO	TLILIC4011 This licence also encompasses: • 100 tonnes or less – C1 • 60 tonnes or less – C6 • 20 tonnes or less – C2 • Non-slewing mobile crane – CN • Vehicle loading crane – CV
Materials Hoist	НМ	CPCCLHS3002
Personnel and Materials Hoist	HP	CPCCLHS3001

ТҮРЕ	LICENSE	COMPETENCY
Boom Style Elevating Work Platform (11m or more)	WP	TLILIC2005 Note: CS Energy has expanded this license requirement to all boom type EWPs.
Scissor Lift / Elevated Work Platform (less than 11m)	Nil	RIIHAN301D
Fork Lift Truck	LF	TLILIC2001
Order Picking Forklift Truck	LO	TLILIC2002
Dogger	DG	CPCCLDG3001 RIIHAN208
Basic Rigger	RB	CPCCLRG3001 RIIHAN209
Intermediate Rigger	RI	CPCCLRG3002 RIIHAN210
Advanced Rigger	RA	CPCCLRG4001
Basic Scaffolder	SB	CPCCLSF2001 RIIHAN211

ТҮРЕ	LICENSE	COMPETENCY
Intermediate Scaffolder	SI	CPCCLSF3001 RIIHAN302D
Advanced Scaffolder	SA	CPCCLSF4001
Standard Boiler Operator	BS	MSABLIC001
Advanced Boiler Operator	BA	MSABLIC002
Turbine Operation	то	SUGPOTB2
Front End Loader Backhoe	Nil	OHSCER202 RIIMPO319 SIFCBCR015
Excavator	Nil	OHSCER205 MNMSM306 MNMOLH301 MNCO1027 RIIMPO301 SIFCBCR015 AHCMOM208 RIIMPO320

ТҮРЕ	LICENSE	COMPETENCY
Front End Loader	Nil	OHSCER203 MNCO1013 MNMOLH305
Scraper	Nil	MNCO1017 MNMOLH308 RIIMPO312
Grader	Nil	OHSCER217 MNCO1016 MNMOMS306 MNMUMS304 RIIMPO310
Skid Steer Loader	Nil	OHSCER204 RIIMPO318
Dozer	Nil	OHSCER209 MNCO1024 MNCP1006 MNMOLH307 RIIMPO305 RIIMPO308 RIIMPO309
Vehicle Loading Cranes (less than 10 metres tonnes)	Nil	OHSCER211 RIIHAN307D

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## **12 LEARNING FROM INCIDENTS PROCESS**





CATEGORY	HEALTH AND SAFETY	ENVIRONMENT	SECURITY
NON WORK RELATED	<ul> <li>Non work related injury or illness.</li> </ul>	• N/A.	• N/A.
C1 LOW	<ul> <li>First aid injury (FAI)</li> <li>- (actual or potential).</li> </ul>	<ul> <li>Small contaminant release or land disturbance, localised on-site area affected.</li> <li>Routine short-term clean-up/remediation.</li> </ul>	<ul> <li>Detected security breach with minimal impact to safety.</li> </ul>
C2 Moderate	<ul> <li>Medical Treatment Injury (MTI)</li> <li>- (actual or potential).</li> </ul>	<ul> <li>Moderate contaminant release or unauthorised land disturbance, localised on-site.</li> <li>Routine short-term clean -up/remediation.</li> <li>Low level compliance failure that does not result in Regulator enforcement actions e.g. failure to correctly complete a waste tracking certificate.</li> </ul>	<ul> <li>Stolen or impaired asset that does not restrict operations.</li> </ul>
C3 SIGNIFICANT	<ul> <li>Lost Time Injury (LT))</li> <li>- (actual or potential).</li> <li>Serious injury or illness, defined by WHSQ, where the reasonable maximum consequence is not a fatality (actual or potential).</li> </ul>	<ul> <li>Large contaminant release or unauthorised unlawful land disturbance, localised on or off-site.</li> <li>Short-term clean-up/remediation.</li> <li>Likely enforcement action from Regulator.</li> </ul>	<ul> <li>Stolen or impaired asset that restricts operations.</li> </ul>
C4 HIGH	<ul> <li>Fatality or multiple fatalities</li> <li>- (actual or potential).</li> <li>Serious injury or illness, defined by WHSQ, where the reasonable maximum consequence is a fatality - (actual or potential).</li> </ul>	<ul> <li>Large to very large contaminant release or unlawful land disturbance, localised off-site (in breach of environmental licence).</li> <li>Long-term or complex long-term clean-up/ remediation, potentially irreversible.</li> <li>Major fine and/or prosecution imposed or likely to be imposed.</li> </ul>	<ul> <li>Stolen or impaired asset resulting in plant shutdown.</li> </ul>

# 13 NOTES



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