

CS ENERGY

MICA CREEK POWER STATION GAS SAFETY MANAGEMENT PLAN CS-OHS-MP-01

Responsible Officer: Chief Executive

Approved: Site Manager, Mica Creek Power Station

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Version History

0	Issued for implementation - supersedes Procedure for Petroleum and Gas Safety Management, CS-OHS-02	B Johnson, S Henry-Schwarten	16.02.11
Revision	Description	Originator	Date

1 HEATH AND SAFETY MANAGEMENT SYSTEM

1.1 Purpose

This Gas Safety Management Plan (**SMP**) reflects CS Energy’s Health and Safety Management System and outlines the procedural requirements for the Mica Creek Power Station (**MCPS**) and Gas Pipeline to ensure that all personnel associated with its gas works and gas assets work in a safe manner and in compliance with legislative requirements. This SMP is applied in conjunction with CS Energy’s Health and Safety Manual, CS-OHS-M-01 and includes:

- employee and contractor responsibilities;
- CS Energy document hierarchy; and
- safe work practices.

1.2 Scope

This SMP applies to all CS Energy employees, contractors and visitors and is to be implemented by way of:

- scheduled SMP introduction and revised training sessions;
- inductions; and
- toolbox talk including change management awareness sessions.

1.3 Structure

The SMP is positioned in the hierarchy of the document structure and supports the CS Energy Health and Safety Manual, CS-OHS-M-01. This SMP focuses on the safe operation of gas assets and systems of work. Figure 1 outlines the document hierarchy of the CS Energy health and safety management system.

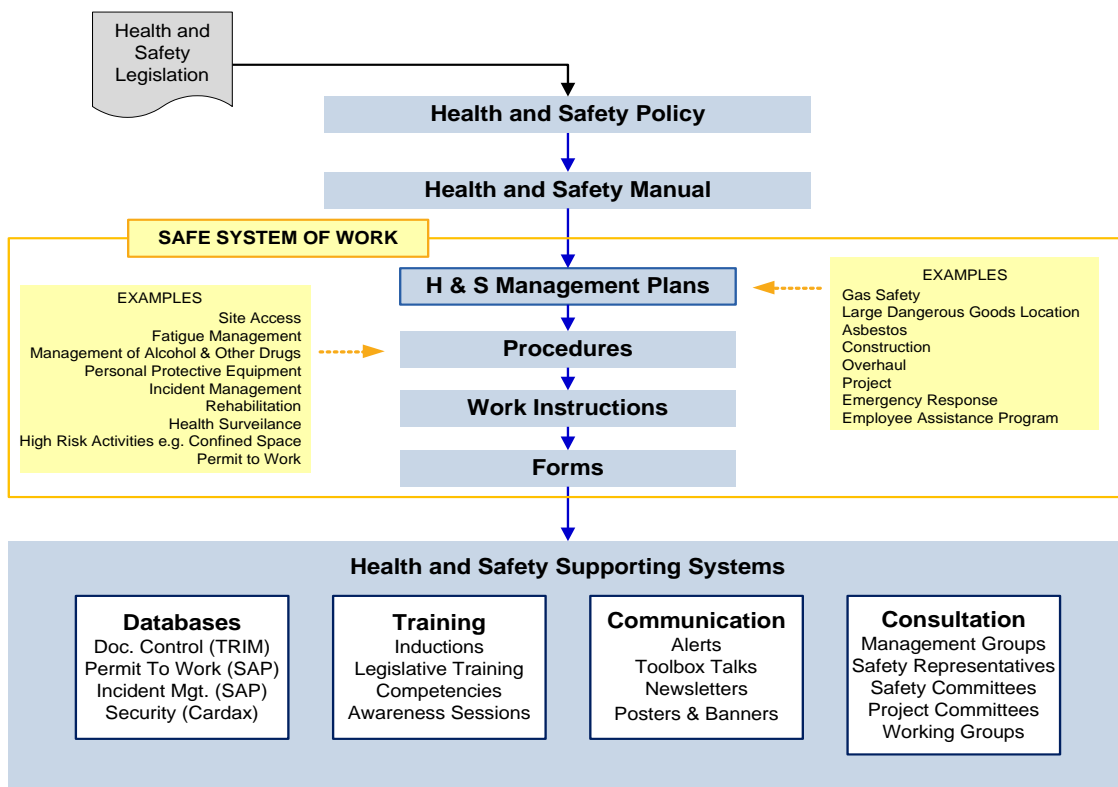


Fig. 1 – Health and safety document hierarchy

2 POLICY

CS Energy's Health and Safety Policy is the over-arching document of the health and safety management system.

This Policy is signed by the Chief Executive and approved by the CS Energy Board. CS Energy communicates its commitment to safety via this Policy to all employees, contractors and others. This is achieved primarily through induction processes, noticeboards, Health and Safety Manual, this SMP and intranet. Other communications mechanisms are used to support these processes such as toolbox talks and meetings.

3 PLANNING

3.1 Statutory Legislation and Standards

This SMP has been prepared in line with the Queensland Workplace Health and Safety Act 1995 and Regulation 2008, Electrical Safety Act 2002 and Regulation 2002, Petroleum and Gas (Production and Safety) Act 2004, AS/NZS4801 Occupational Health and Safety Management systems and AS2885 Pipelines – Gas and Liquid Petroleum along with other relevant acts, regulations, standards and codes of practices as set out in Appendix 1.

3.1.1 Legislation Register

All CS Energy employees have access to current and relevant statutory legislation and standards through the publication of the company's compliance database. The CS Energy compliance database is located on the intranet and is reviewed on an annual basis, or as required when new legislation and/or standards are implemented or amended.

An appropriate person is available for each functional location as a contact for employees, contractors and others seeking guidance on matters of legislative requirements.

3.1.2 Compliance

Compliance is the outcome of CS Energy meeting its legislative obligations as per AS 2806:2006 – Compliance Programs. Compliance must be integrated into all aspects of how the organisation operates and should not be seen as a stand-alone activity but should be aligned with CS Energy's overall strategic objectives.

The CS Energy compliance program is governed by the company Compliance Policy. The CS Energy Compliance Policy is signed by the Chief Executive and approved by the CS Energy Board. CS Energy communicates its commitment to compliance via this Policy to all employees, contractors and others. This is achieved primarily through the role of the compliance officer and intranet.

Legislative compliance requirements associated with health and safety management are documented in CS Energy's compliance database. This database is managed by the Corporate Risk & Assurance Group, who is responsible for monitoring all compliance matters and interpreting that information into a compliance database.

The information contained in this register is readily available to any employee via the compliance officer at each functional location, and shall be specifically disseminated to the relevant line managers for their awareness, review and action as required.

For further information refer to the compliance database which is located on the CS Energy Intranet. Refer to the functional location compliance officer for guidance.

3.2 Objectives and Targets

CS Energy establishes a strategic business plan and sets the health and safety performance objectives and targets at a business level which forms the basis of the annual CS Energy health and safety business plan. The details are outlined in the Health and Safety Manual, CS-OHS-M-01 which are constant across the business including gas works and assets.

Each site and functional business group is required to develop their own specific health and safety business plan which outlines their health and safety performance objectives and targets aligning with the divisional business plans for the coming year.

MCPS aligns its objective and targets to the CS Energy strategic business plan for its gas pipeline and generating assets.

3.2.1 Annual Goals and Targets

The CS Energy health and safety business plan establishes performance targets using lead and lag indicators, as well as specific key initiatives and actions.

The approved goals and targets shall be communicated to the team by the MCPS Site Manager. Progress towards completion of the goals and targets will be monitored and recorded on a monthly basis and reviewed at safety committee meetings. The Health & Safety Coordinator will coordinate measurement and achievement.

3.2.2 Key Performance Indicators

The health and safety key performance indicators (**KPI**) combine both lagging and leading indicators. These are detailed on the health and safety scorecard (strategic plan overview) and are reviewed annually through a consultative process.

Refer to Appendix 2 for details of the KPIs documented on the health and safety annual scorecard.

3.3 Plans

MCPS shall develop specific plans to reflect CS Energy's requirements for areas of gas management to identify hazards and risks for the relevant gas works and assets to outline the appropriate control measures to mitigate against any risk to ensure all people working under the plan work in a safe and compliant manner.

3.3.1 Environmental Management Plan

CS Energy's Environmental Management Plan sets performance standards that CS Energy is to achieve, as required by the Environmental Protection Act 1994, (*e.g. in relation to the gas pipeline right of way, the APIA Code of Environmental Practice as specified in AS2885.3 directs the minimum standards*). Strategies for the following aspects requiring environmental management will be detailed for the following areas:

- Soil and sediment
- Noise
- Air
- Stormwater
- Flora and fauna
- Heritage
- Access and security
- Hazardous material
- Waste

These management strategies outline the actions CS Energy will undertake to achieve minimal environmental impact resulting from MCPS and Gas Pipeline operations. The Environmental Coordinator, under the direction of the Site Manager, shall drive management of environmental hazards and the environmental management system.

3.3.2 Contractor Management Plan

The purpose of CS Energy's Contractor Management Plan is to detail the systems used to ensure potential health and safety hazards are identified, assessed and eliminated in the selection and on-going evaluation of contractors and suppliers as per the systematic process of AS/NZS 4801:2001 Occupational Health and Safety Management Systems.

The Contractor Management Plan applies to all hire of plant, materials and equipment and all contractors engaged by CS Energy to carry out work.

CS Energy's Contractor Management Procedure is to be followed to ensure Contractor Management is robust and compliance to with the plan and procedures. Contractor selection by MCPS is based on several aspects including:

- health and safety capability;
- competency; and
- prior performance

The approach to contractors is that they must conform to CS Energy health and safety systems and it is the responsibility of their CS Energy point of contact and job supervisor to ensure this occurs.

Refer to the CS-OHS-27, Guidelines for Health, Safety and Environmental Plans for further information.

3.4 Risk Management

MCPS risk management process aligns with AS/NZS 4360 – Risk Management to manage risk across the organisation. The risk management process provides a systematic approach for controlling hazards to an acceptable level, or developing appropriate control strategies and measures to minimise the level of risk. Risks shall be managed using the hierarchy of control.

CS Energy's risk management process following the hierarchy of control is to manage risks by elimination of the hazard. If this is not practical, the risk is to be managed to as low as reasonable practicable (**ALARP**).

Refer to the CS Energy Health and Safety Manual, CS-OHS-M-01, for details of the risk management processes, hierarchy of controls, tools and application.

3.4.1 Risk Register

Risks identified in Safety Management Studies such as HAZOP and CHAZOP's are transferred to MCPS operations risk register. The risk register is a living document allowing new or changed threats, and methods for their mitigation to be added to the risk register as they are identified. The Site Manager is responsible for approving risks ALARP.

A risk management study is scheduled to be completed at least every 5 years to ensure all threats are included in the risk register.

Access to the MCPS and the Gas Pipeline risk register can be sourced from the MCPS Health & Safety Coordinator.

3.4.2 Permit to Work

MCPS will manage all permitting for power station and pipeline activities using the Permit to Work Process as detailed in the Health and Safety Manual, CS-OHS-M-01.

The Permit to Work (**PTW**) process aims to ensure that work occurs with the appropriate level of safety to reduce exposure to risk in a systematic, planned and approved manner by providing a mechanism for CS Energy team members, contractors and/or other relevant third parties to identify, schedule, evaluate and review works before proceeding with the activity. All employees will be trained in Permit to Work during the induction process and additional training is provided on an ongoing basis as prescribed in Section 12 of the PTW Manual.

For further information on the application of permitting and associated processes refer to PTW Manual V1.00.03.

3.4.3 Job Safety & Environmental Analysis

The Site Manager will ensure that a Job Safety & Environmental Analysis (**JSEA**) is undertaken and/or reviewed and be critically analysed to ensure all relevant controls are identified for all job tasks. JSEA's must also be prepared / reviewed prior to applying for a Permit to Work.

All assessments are to be compiled by the relevant Officer in Charge / Supervisor and work team. JSEA's are to be forwarded to the Responsible Officer for review and registering. Further consultation between the officer in charge / supervisor and work team is to take place prior to commencing the work to ensure relevance of the planned method and also to confirm understanding and input from the crew.

Access to pre-existing JSEA's is to be found in the JSEA register managed by the MCPS Health & Safety Coordinator. JSEA forms are located on the company intranet. Refer to the Job Safety and Environmental Analysis Procedure CS-OHS-11 for further information.

3.4.4 2X2 Task Risk Analysis

The 2X2 Task Risk Analysis (**TRA**) shall be used by all persons for all jobs prior to commencing the work. It is a risk assessment tool where the person steps back 2 metres and takes 2 minutes to assess the job, tools, documentation and conditions for any hazards that may expose that person to unnecessary risk.

If the risk is above moderate a JSEA is then required before work can commence. Completed TRAs shall be maintained by the relevant supervisor and available for review when required.

3.4.5 Procedures and Work Instructions

MCPS recognises that written standard operating procedures (procedures and work instructions) are essential to ensure a safe work environment and are an important part of an overall occupational health and safety program.

Procedures and work instructions should be developed, by use of a JSEA, for all routine activities, processes, equipment and machinery where there exists a risk to cause harm.

Procedures or work instructions (including those of subcontractors) are to be in sufficient detail to allow the management team to clearly understand how the operation is to be undertaken. These are signed off by respective manager authorising the methodology to be used.

The Site Manager is responsible for maintaining copies of all site procedures and work instructions and register of JSEA's received and reviewed.

Procedures and work instructions must include as a minimum:

- an overall description of the work to be undertaken;
- engineering controls to be applied for the work to be undertaken;
- hazards identified for the work to be undertaken and controls to be built in to the work sequence;
- the manner in which the operation will be undertaken, what plant will be used and what resources will be needed for the completion of the operation;
- what certification will be needed to complete the operation;
- actual step by step sequence involved in doing the work; and
- safety controls to be applied.

Prior to an activity commencing for which a safe operating procedure has been developed, relevant personnel shall be advised of the content of the procedure.

3.4.6 Change Management

Experience has shown that inadequate management of change significantly increases the risk of incidents. Uncontrolled modifications to plant and equipment or operating procedures have led to disasters. For this reason, CS Energy has identified strategies, policies and procedures that will ensure that all modifications are reviewed by competent people, are appropriately authorised and documented and that necessary training is provided before the modifications are implemented.

The objective is to ensure that any modifications to the design of plant or procedures are thoroughly assessed through relevant planning, design and procurement measures. This is to ensure that changes to systems and procedures, equipment and facilities or personnel do not dilute the integrity of health and safety management system. For further information refer to the CS Energy Management of Change Procedure, CS-AM-010.

3.4.6.1 Risk Assessment of Change: Care will be taken to ensure the safety implications of change are identified and assessed, and any risks are either eliminated or controlled consistent with Workplace Health and Safety Regulations.

Proposed plant and process changes will be submitted to the MCPS Engineering Superintendent, who will assess the potential impact, give due consideration to the original design basis or management process and the effect of the change on other disciplines.

Where controlled documents are required to be revised, these will be updated, and the superseded documents removed from circulation in accordance with the Preparation and Revision of Documented Procedures CS-DOC-1.

3.4.6.2 Documentation / Scope Modifications Proposed changes to procedural documentation and scope of work at MCPS will be evaluated by the Engineering Superintendent through comparison with CS Energy management system requirements, standards and policies prior to being implemented. The MCPS Engineering Superintendent, in consultation with relevant stakeholders, will also assess the potential of impact on the original process/design basis.

Contractors will obtain the Engineering Superintendent's approval for proposed scope of work change, as required. Approved scope of work changes, including any additional risk controls or scope modifications, will be documented as approved by the Engineering Superintendent before change implementation is initiated where appropriate.

Any changes to procedural documentation will be confirmed by the Engineering Superintendent and Health and Safety Coordinator. The Engineering Superintendent shall notify relevant supervisors of approved changes to procedural documentation.

Note: The only exception is for identified immediate risk control or in emergencies where the requirement is recognised as a non-routine situation or an immediate threat to the safety of personnel or the environment.

3.4.7 Construction Work

For the completion of major works within the MCPS and on the gas pipeline, HAZOPS / CHAZOPS are conducted. HAZOPS are always conducted using facilitators and multi-disciplinary assessment teams. HAZOPS are employed for major repairs within the power station or for planned plant modifications.

Outstanding risks from HAZOPS are managed by the Site Manager until satisfactorily close out, which occurs once the risk is deemed ALARP. Actions where appropriate, are incorporated into the risk register.

The principal contractor is responsible for identifying all site safety issues and providing and maintaining the appropriate systems to ensure the safety of workers and visitors. This includes establishing systems and processes, prior to commencing work on a site, for:

- Access and egress
- Site safety needs and amenities
- Site conditions and security
- Site safety inductions
- Safety signs and notices
- Records, registers and forms
- Health and safety consultative arrangements
- Lists of contacts onsite e.g. supervisor, first aider etc
- Emergency procedures

A person with management or control of construction work must ensure:

- That any reasonably foreseeable hazard arising from the construction work that has the potential to harm persons undertaking construction work or any other persons, is identified and recorded.
- That reasonably foreseeable hazards arising from the following are identified and recorded:
 - The construction site
 - Any design relating to the construction work
 - Work practices and systems of work
 - Plant (including the onsite transport, installation, erection, commissioning, use, repair, maintenance, dismantling, storage or disposal of plant)
 - Hazardous substances (including the handling, use, storage, and on-site transport or disposal of hazardous substances)
 - The presence of asbestos
 - Manual handling (including the potential for occupational overuse injuries)
 - The layout and condition of the construction site/area.
- The physical working environment, including the potential for any of the following:
 - Electrocution
 - Fire or explosion;
 - People slipping, tripping or falling

- Objects or structures falling on people
- People being struck by moving plant
- Exposure to noise, heat, cold, vibration, radiation, static electricity or a contaminated atmosphere
- The presence of a confined space
- That effective procedures are in place to identify and record hazards arising:
 - Prior to construction work commencing;
 - Before and during the installation, erection, commissioning or alteration of plant on the construction site;
 - Before changes to work practices and systems of work are introduced;
 - Before hazardous substances are introduced onto the construction site; and
 - While work is being carried out.

Refer to the Guidelines for Health, Safety & Environmental Plans, CS-OHS-27, for further information.

4 IMPLEMENTATION

4.1 Organisation

The organisational structure is outlined in Figure 2. The health and safety structure operates with a leadership function from CS Energy Brisbane and operations support from the site-based Health and Safety Coordinator.

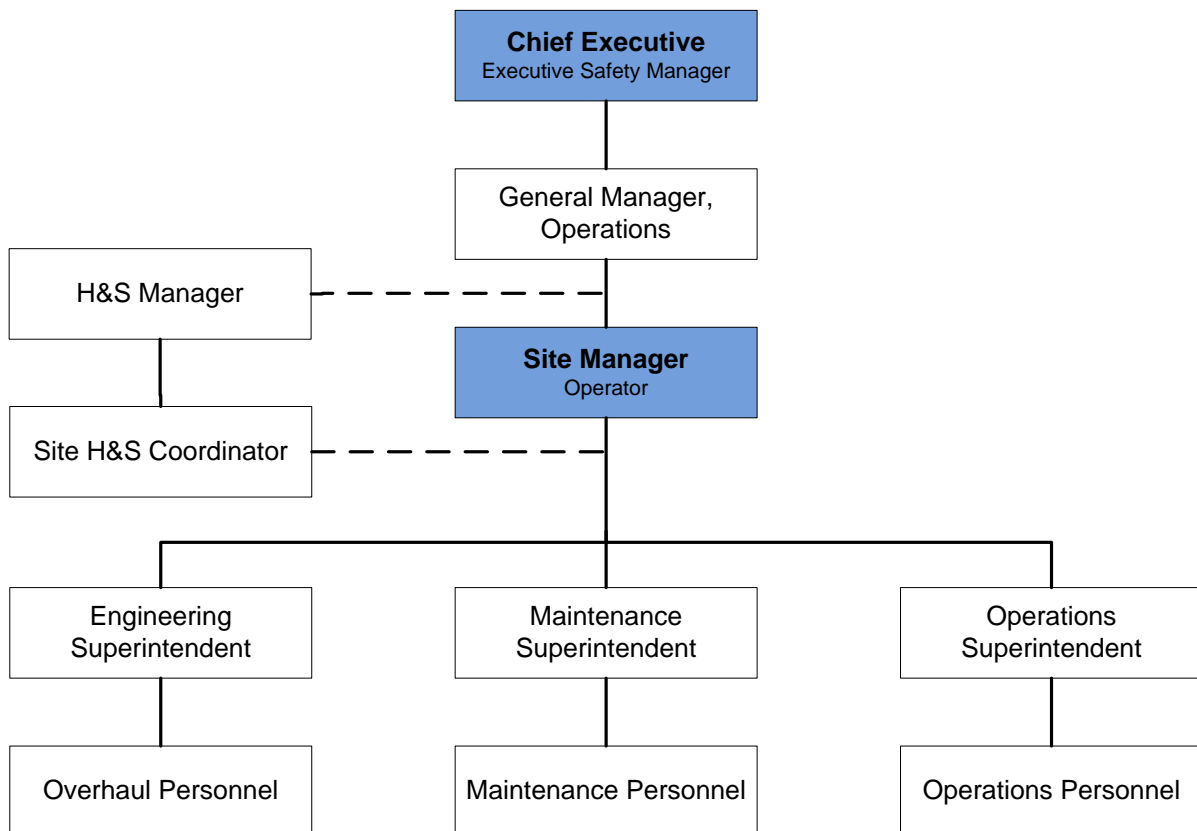


Fig. 2 – Organisational structure

4.2 Responsibilities

Every CS Energy employee contributes to the safe and efficient operation of CS Energy assets. The health and safety responsibilities of key positions are detailed below and these should be read in conjunction with the relevant role purpose statements.

4.2.1 Chief Executive

The Chief Executive is the Executive Safety Manager for the MCPS operations as defined in the Petroleum and Gas (Production and Safety) Act 2004 for the MCPS Gas Pipeline and gas devices.

The Executive Safety Manager is responsible for:

- ensuring the safety of every employee, contractor and visitor within the corporation, including subsidiary companies under the role responsibility;
- ensuring there are adequate resources and systems in place to safeguard the health and safety of employees, contractors and others;
- acting as a positive, influential role model to all personnel by championing safety throughout the organisation to ensure CS Energy takes a proactive approach towards health and safety management;
- driving compliance with the H&S management systems;
- ensuring management and others participate in the continuing development of health and safety management systems;
- ensuring operation and maintenance of CS Energy assets achieve business objectives with emphasis on safety, risk management, training, compliance, budget performance and contractor performance;
- ensuring all risk management processes are implemented and applied to demonstrate risk reduction;
- implementation and annual review of the Health and Safety Policy; and
- in conjunction with the Health & Safety Coordinator; maintain and update the Risk Register.

4.2.2 General Manager, Operations

The General Manager, Operations is responsible for the operations associated with CS Energy sites including MCPS operations and reports to the Chief Executive.

The responsibilities cover approval of activities, budgets, business plans, resources and procedures utilised at MCPS and include ensuring:

- health & safety management systems are developed, implemented and maintained;
- risk management plans are developed for major risks throughout the organisation;
- any high-risk incidents are reported, investigated and control measures implemented;
- training is conducted for operators and workers on the safety systems developed and records are maintained;
- competent persons are engaged to implement procedures and operate plant; and
- information and advice is provided to the Chief Executive on health and safety matters.

4.2.3 Site Manager

The Site Manager is the Operator as defined in the Petroleum and Gas (Production and Safety) Act 2004 section 693. The Operator acts as the Site Safety Manager and is responsible for ensuring:

- each person who enters the site is given an appropriate induction that enables the person to comply with this SMP;
- each person on MCPS complies with CS Energy's policy, procedures and work instructions, emergency response procedures and other measures necessary for the safety of the site and the person;
- each person working at MCPS performs their functions safely and follows CS Energy systems and processes for the plant;
- first aid, safety and other like equipment that is appropriate for the likely hazards of the site is:
 - available for use;
 - adequately maintained;
 - reasonably available to anyone authorised to be on the site; and
 - that relevant staff are trained in first aid, emergency and other general safety procedures.

In conjunction with the Operator role, the Site Manager is also responsible for:

- ensuring appropriate plans and procedures are in place and current to undertake the operational activities required for operating the plant on a daily basis;
- being a positive, influential role model for the operations team;
- encouraging and supporting the development of team members;
- leading the implementation and integration of the health and safety management system with other management systems;
- implementing and managing the training and assessment process, including training needs analysis, training, assessment and qualifications;
- ensuring there is a consistent standard of competency for employees which meets industry best practice and legislative compliance requirements;
- encouraging team members participation and input into the continuing development of the management system;
- providing assurance to the Executive Safety Manager that all employee's reporting to the Site Manager are fully aware of their responsibilities under this plan; and
- managing the maintenance schedule for the power station and the pipeline system.

4.2.4 Health & Safety Coordinator

This role coordinates the areas of health and safety for MCPS on behalf of the Site Manager. This is achieved by:

- maintaining a high-level safety and risk management culture across MCPS to eliminate or minimise safety risks to staff and the communities the asset traverses;
- ensuring safety plans and programs are compliant with standards, acts, regulations and policies relevant to the operation and maintenance;

- maintain and update the Strategic Risk Register in conjunction with the Site Manager;
- coordinating health and safety management system implementation across MCPS;
- driving the legislative compliance, measurement and review aspects of the health and safety management system;
- assisting and advising the Health and Safety Committee as required;
- ensuring safety control measures are proportionate to the related risks;
- maintaining health and safety management records, databases, procedures, plans, registers and other associated tools;
- being a positive, influential role model for the team;
- encouraging team members participation and input into the continuing development of the management systems; and
- ensuring environmental management processes are in place to meet the Environmental Authority.

4.2.5 Engineering Superintendent

The Engineering Superintendent is responsible for the gas pipeline integrity management, engineering and technical support for the operation of MCPS assets. This is achieved through:

- input and engineering direction for emergency response;
- input and engineering direction in relation to environmental matters;
- input and engineering direction in relation to safety management matters;
- input and engineering direction in relation to operational matters;
- management of the Change Management Process including design change;
- maintenance of the engineering plans and procedures to ensure currency and relevance to MCPS operations;
- ensuring the Pipeline Drawings are maintained and reflect the current state of the gas pipeline;
- liaison with third parties to ensure compliance with CS Energy requirements for works conducted near or on MCPS assets; and
- measurement requirements as defined by the Petroleum and Gas (Production and Safety) Act 2004 Chapter 8 part 2.

4.2.6 Employees

Every CS Energy employee has a defined and accepted role purpose statement, which specifies their responsibilities and commitment to health and safety.

Each person at MCPS must take all necessary and reasonable action to ensure no person or property is exposed to more than an acceptable level of risk.

Employees have the following general responsibilities to:

- contribute to a positive and effective risk-based safety culture;
- comply with the H&S management system requirements;
- use PPE where required, instructed and trained to do so;

- not wilfully or recklessly interfere with or misuse anything provided for health and safety at the workplace;
- not wilfully place at risk the health and safety of any person at the workplace.
- not wilfully injure himself or herself;
- ensure contractors are supervised and comply with CS Energy operation systems;
- cease work if there is doubt to the safety of the circumstances, review and report incidents;
- participate in incident investigations; and
- follow CS Energy Policies and procedures when completing any tasks.

4.2.7 Contractors

Contractors shall:

- attend CS Energy induction prior to commencing work on CS Energy worksites;
- comply with the CS Energy H&S management system requirements;
- use PPE where required, instructed and trained to do so;
- not wilfully or recklessly interfere with or misuse anything provided for health and safety at the workplace;
- not wilfully place at risk the health and safety of any person at the workplace;
- not wilfully injure himself or herself;
- report all safety and health issues; and
- adhere to the H&S Contractor Management Procedure.

4.3 Training and Competency

Safety of employees and the public is the number one priority for CS Energy. High levels of safety and environmental awareness are a reflection of the level of competency of CS Energy staff and the training provided.

All CS Energy employees must participate in training and be assessed as competent to perform their duties. This is achieved through Internal Awareness Training and External Nationally Recognised Training Organisations.

4.3.1 Training Needs Analysis

A training needs analysis is undertaken annually by the CS Energy Corporate Learning & Development Group and the MCPS Health & Safety Coordinator to ensure all training goals are met. An employee training matrix is managed by the site Learning & Development Coordinator. Training information is also updated in the Systems Application Product (**SAP**) to ensure refreshers are completed prior to expiration of a qualification. SAP issues automatic notifications via email to persons with responsibility for servicing and maintaining Type-B appliances and gas pipeline assets informing them that their current training is scheduled to be updated.

4.3.2 Competency

Although experienced personnel are employed to work at the MCPS, CS Energy ensures that each competency, relevant to responsibility, is retained. This is achieved by ensuring that selected operations and maintenance employees who have responsibility for operating or servicing Type-B gas appliances, other gas devices and the gas pipeline undertake the following training:

- Gas Turbines – Fundamentals, Maintenance & Inspection (Engineering & Supervisory Staff)
- Turbine Functional Safety Competency (Engineering)
- Gas Turbine Training (All Operational Staff)
- Gas Works Authorisation Training

This training is delivered by a range of external providers which include Air & Gas Industries and Inventsys Process Systems (**IPS**). New employees are identified as needing this form of training using the Site Training Needs Analysis. Refresher training is provided as required and training currency is monitored using SAP and the site training register.

To operate gas turbines and boilers, operators must hold the relevant licences under Workplace Health and Safety Queensland which include:

- Operate a Turbine; and
- Operate a Boiler (advanced) with multiple fuels simultaneously fired.

4.3.3 Inductions

MCPS schedule site-specific inductions every Tuesday and Thursday each week for employees and contractors either as a refresher or initial induction prior to starting work on site. This induction is approximately 2 hours in duration.

The site-specific safety induction shall include the following as a minimum:

- Site safety rules, regulations and safety policies
- Goals and Targets
- Health and Safety Policy
- Rehabilitation Policy & protocols
- Environmental Policy
- Equal Opportunity Employment Policy
- Fit for Duty Policy
- Gas safety
- Fair and Just Culture
- Emergency procedures, services and rescue
- Site specific hazards
- Site orientation including location of first aid and amenities
- Site traffic plans and traffic rules
- Use of fire fighting appliances
- Prescribed occupations
- Personal protective equipment
- Incident and hazard reporting
- First aid register, treatment and procedures
- CS Energy Procedures/Risk assessments
- Gas Works Authorisation
- Pre-start and Toolbox Talk Meetings
- Workplace inspections and behavioural observations.

A competency assessment is held at the end of the full induction to ensure understanding by participating personnel. The Health and Safety Coordinator (or delegate) will maintain records of attendance and the assessment.

A record of all inducted personnel is kept using a training/Induction register. The full induction is current for two (2) years from the induction date.

4.3.3.1 Gas Pipeline Operation Induction The Pipeline Operations induction shall be delivered to all new employees prior to commencing site work as an add-on to the standard MCPS induction training. Immediate supervisors will conduct the inductions for new personnel. This induction covers legislative obligations, gas safety management plan duties, gas work authorisations, document / records management and risk management. Records of this training are kept in the site induction register.

4.3.3.2 Visitor Induction Short-term visitors to MCPS will be required to attend a short information session which focuses on addressing relevant safety issues and will last approximately 15 minutes.

This induction will cover specific requirements and guidelines for the site, and includes informing visitors of MCPS, the minimum mandatory requirements for the wearing of PPE and other specific access restriction or hazards to be aware of pertaining to the work site.

Visitors will be accompanied by an inducted MCPS employee at all times during their visit.

A register of all participants shall be maintained at the site. Refer to Visitor Access and Site Tours Procedure CS-OHS-17 for further information.

4.4 Consultation, Communication and Reporting

4.4.1 Demonstration of Management Commitment

All levels of management within CS Energy are committed to health and safety at MCPS Creek. This commitment is demonstrated by the implementation and adherence to the company's risk management practices and procedures intended to ensure that all persons at the workplace are not exposed to health and safety risks.

To demonstrate this commitment, MCPS management will ensure that:

- CS Energy's health and safety policy is displayed and communicated throughout the workplace;
- the health and safety policy is reviewed periodically;
- where necessary, senior management will be represented at a senior level at meetings of the health and safety committee;
- at risk behaviours and unsafe conditions will be rectified as soon as possible in accordance with the established time frames within CS Energy's risk management practices;
- where delays in resolution of health and safety hazards are expected, the workplace hazard will be made safe via such measures as are necessary until the final control measure/s can be implemented. Where this occurs, the progress on full correction will be communicated to the workforce at regular intervals;
- management will support all policies and lead by example;
- where appropriate, non-compliance with safety policies and procedures may result in disciplinary action being initiated using the fair and just culture process;
- safety will be an agenda item at all prescribed or regular meetings;
- a copy of the SMP will be made widely available throughout the workplace;
- regular workplace inspections, behavioural observations, reviews and audits are carried out at each workplace; and

- appropriate resources will be allocated to carry out all health and safety practices and policies mentioned within this SMP.

4.4.2 Health and Safety Issue Resolution

Employees and contractors are encouraged to raise issues related to safety or their work environment with their supervisor. Staff are encouraged to stop work with no repercussions should they feel their safety, the public's or individuals performing the work, is compromised.

CS Energy management will foster the attitude that people should address issues as they arise, when they are capable of safely doing so.

Health and safety issues, such as hazards and improvements, are to be documented using the Hazard/improvement report form located in the health and safety pocket guide. This process is documented in the Procedure for Reporting Hazards/improvements, CS-OHS-51.

The process is outlined in Figure 3.

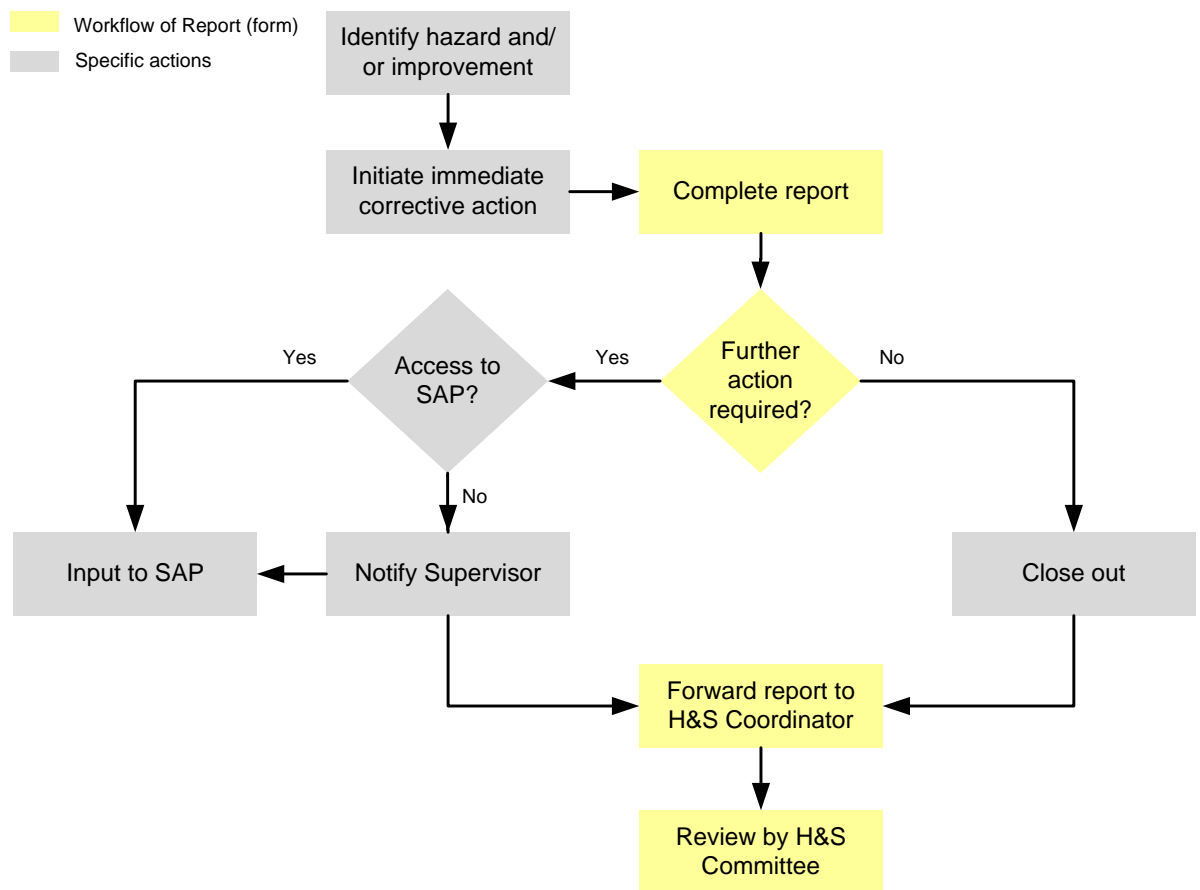


Fig. 3 – Hazard / improvement process

4.4.3 Toolbox Talk Meetings

Toolbox Talks are formal meetings held, as a minimum, on a weekly basis to discuss health, safety, environmental and operational matters.

The aim of these meetings is to communicate business initiatives and the importance of safety to enhance each person's understandings of their work and ensures a

consistent and safe approach to undertake work. For further details refer to Procedure for Conducting Toolbox Talks, CS-OHS-30.

The manager, superintendent, supervisor or officer in charge shall lead the meeting and encourage open discussion between all attendees.

Each attendee shall sign verify their attendance on the register for record of attendance. The records shall be held with the Health and Safety Coordinator and included in the monthly health and safety statistical reporting for a lead indicator.

Toolbox Talk information topics often relate to gas assets and Type-B appliances, pipeline assets and supporting infrastructure onsite (e.g. gas skids, emergency response, etc).

4.4.4 Safety Meetings

MCPS holds an extended management team safety meeting each Wednesday and a safety initiatives meeting each Friday. The meetings are attended by site management representatives, and information is disseminated to all employees through meeting minutes and team leader briefings. These meetings are used to:

- review incidents;
- chart progress toward achievement of goals and targets;
- provide feedback on issues raised by other employees;
- review relevant Australian Standards, Codes of Practices, etc; and
- provide an avenue to raise potential system improvements.

4.4.5 Health and Safety Committee

Under the Queensland Workplace Health and Safety Act, it is a requirement that Health and Safety Committees are established at workplaces where there are 30 or more employees present. As part of CS Energy's consultative approach to health and safety with employees, MCPS has established a Health & Safety Committee.

The Committee is responsible for monitoring health and safety standards, promoting health and safety, and acting as an advisory body to the manager/supervisors.

The committee includes representatives from:

- Management
- Maintenance Employees & Contractors
- Project Management Personnel
- Operations Personnel
- Administrative & Support Services Personnel

The committee meets at monthly intervals, to discuss Safety and Health performance and determine opportunity for improvement at the workplace. To achieve this, the committee will evaluate hazards, safety performance, behavioural observations, workplace inspections, and suggestions by Committee members.

Committee members identities are posted on notice boards around MCPS.

Recommendations will be endorsed by the Committee and submitted as part of its monthly report to the Site Manager and to the Health and Safety Coordinator.

For information regarding the functions of the Health and Safety Committee refer to the Health and Safety Manual, CS-OHS-M-01.

4.5 Documentation

4.5.1 Health and Safety Documentation Access

Safety related documentation and data will be controlled in accordance with CS Energy's Document Control Procedure. (Subsequent revisions of this plan will address the preferred document numbering and issue system).

The controlled copy of this Safety Management Plan and related documents shall be maintained on the CS Energy Intranet, which can be copied and printed by the Operation team. These printed copies shall be treated as Uncontrolled.

Copies of the SMP, together with any amendments, will be issued to the relevant parties as per the distribution list within this plan. These issued copies will be treated as controlled copies and transmittal records shall be maintained to ensure all amendments are communicated.

4.5.2 Safety Alerts

Relevant safety alerts are discussed at monthly safety meetings and posted on all notice boards throughout CS Energy operations.

Alerts shall to be documented in a register and filed to ensure the material is available as a source reference.

4.5.3 Meeting Minutes

A safety meeting is held every Wednesday and is minuted and distributed within two days to all relevant personnel onsite. The safety meeting is attended by the MCPS Management Team.

4.5.4 Forms

Easy access to relevant health and safety forms can be found on the CS Energy intranet. All health and safety documents are managed by the CS Energy Health & Safety Team however if a form does not exist for a particular action advise the MCPS Health & Safety Coordinator for actioning.

4.6 Document and Data Control

4.6.1 Document Control

To manage and review documentation reliably, CS Energy is committed to having a working, effective document control system. Controlled documents receive unique document numbers, details of which are retained in a document register. All controlled documents have been reviewed prior to approval. Once approved, a master copy is retained on file, both electronically and in hard copy. Superseded documents are removed from circulation and the revision number indicates the latest revision.

To maintain the currency of the documents, they are periodically reviewed. The table below provides a guide as to the frequency of review periods for documents. This may be varied dependant on drivers such as changes to legislation, policy direction changes, incident report findings, or at the direction of the General Manager Operations. Records management aspects are covered, in part, in the document control procedure with critical records requirements also captured in the compliance register.

Document	Review Period
Policies, Manual and Plans	Annually
Procedures	2 years
Work instructions	2 years and by change management
Forms	As required and to align with relevant procedures
JSEA	Before use

Table 1 - Document review period

4.6.2 Document Control Data Base

Refer to the CS Energy Health & Safety Intranet page.

4.7 Managing Operational Risk

4.7.1 Electrical Safety

Electrical work and electrical equipment shall be conducted in accordance with CS Energy safety procedure for Electrical Safety (CS-OHS-31) and Maintenance and Testing of Portable Electrical Equipment (CS-OHS-33). The following section relates to the management of electrical hazards associated with handheld electrical equipment.

- Every person at MCPS is to report any condition or practice considered to be dangerous or hazardous immediately
- All electrical accidents giving rise to an electric shock, personal injury or incident must be reported immediately
- Do not remove or interfere with any equipment associated with an electrical incident until investigated by the supply authority, except where such removal of interference is necessary to avoid possible damage to life or property or with the approval of the authority
- Any work being carried out in the vicinity of any external power source requires contact to be made with the relevant electrical supplier to identify the voltage and exclusion zones and authorisation for the work to proceed
- All electrical equipment shall be maintained in good condition, be inspected, repaired and tagged by a licensed electrician at the prescribed intervals. Test and Tag is every 3 months. The MCPS Health & Safety Coordinator or delegate shall maintain records of such inspections
- Double adaptors and piggyback plugs are not to be used in any power outlet
- Electrical leads must have sound insulation and be correctly wired at terminals. Leads must not be over extended or overloaded. They must be raised to prevent hazards in respect to mobility of other workers, contamination by moisture or damage by chemicals, work processes, materials or waste
- Damaged or incomplete electrical equipment will not be used
- Core balance earth leakage devices shall protect all final and sub circuits and generators used on the site
- Circuit breakers or fuses shall not be modified to permit operation above safe circuit limits. They shall be secured to prevent interference by unauthorised persons
- All welding machines shall be fitted with Voltage Reduction Devices.

Note: All electrical wiring installations and equipment used in construction work will be in accordance with the Electrical Safety Act 2002 and its Code of Practice Electrical Work 2002. Where more specific provisions are not made in the Code of Practice, work must conform to the provisions of AS 3000, Wiring Rules 2007, and the local Supply authority Service and Installation Rules.

4.7.2 Radiography and X-Rays

Use of radiation sources at MCPS shall be in compliance with the Queensland Health Radiation Safety Standard and the code of practice for the safe use of industrial radiography equipment.

X-rays and gamma rays may be used to examine welds and for various measuring or activation devices on the site. These radiation sources can cause serious injury or illness, which may not become apparent until some years after exposure.

It is the responsibility of the contractor to provide proper training to all personnel engaged in the use of or exposed to lasers. Suitable safe work procedure must be provided to the Site Manager at least 7 days before commencement for review.

The appropriate warning signs must always be displayed. Personnel will be made conversant with such signs and must keep clear of the beam.

Compliance will be to the Workplace Health and Safety Act, Regulations and relevant Australian Standards such as AS2177 – 2006 Non destructive testing.

4.7.3 Hot Work in Hazardous Areas

Hot work is work which could generate fire, naked flame, heat, spark or other sources of ignition. Hot works are to be controlled in accordance with the CS Energy PTW System and specifically the Hot Work Procedure (CS-PTW-01).

Hot Work includes, but is not limited to:

- Welding, soldering, hot riveting
- Burning, flame cutting, flame heating
- Grinding, shot blasting
- Use of electrical hand tools, power driven cutters
- Lighting a fire of any kind (all zones)
- Use of any equipment which may provide a source of ignition
- Use of non-intrinsically safe electrical devices
- Use of cameras with batteries
- Use of x-ray generating equipment
- Potential to generate static electricity

4.7.3.1 Welding and Oxy Cutting Welding operations are to be conducted strictly in accordance with the applicable parts of the following Australian Standards:

- AS 1336 Recommended Practices for Occupational Eye Protection
- AS 1338 Filters for Eye Protectors
- AS 1674.1 Safety in Welding and Allied Processes; Fire Precautions
- AS 1674.2 Safety in Welding and Allied Processes; Electrical
- WTIA Technical Note 7 : Health & Safety in Welding

Welding Goggles are to be worn at all times when oxy/acetylene welding, cutting or gouging and by all persons in the near vicinity.

Area ventilation is to be installed to ensure that persons involved in welding operations are provided with an adequate supply of fresh air and are protected from welding fumes and gases.

Welding screens of non-flammable materials are to be used and positioned appropriately, to prevent other persons on-site being affected by welding processes and, where welding is carried out in elevated places, barricades and signs or physical shields are to be used to protect persons from falling slag, etc.

Gas bottles will be stored, travelled and used in an upright and secured condition so as to prevent damage to control valves. Gas will be turned off at the bottles when not in use and pressure bled from hoses. Oxygen and acetylene cylinders in use or being lifted shall always be supported in cradles.

Flash arresters will be installed on both hoses, at the regulator and handset on every oxy /acetylene set.

Gas hoses will be checked prior to each use for cuts or perishing and re-terminated or replaced as required.

Gas bottles will be clearly identified as to their contents. Oxygen and Acetylene will be kept 3 metres apart or have a fire barrier between them while in storage.

In addition to the above undertaking hot work shall have due regard to any fire bans or fire restrictions.

The specific project criteria for the use of hot work permits during the construction phase requires the issue of hot work permits for all hot works conducted on site, this includes all welding, cutting, grinding and gouging.

For additional information refer to Hot Work Procedure CS-PTW-01.

4.7.4 Gas Testing

Gas tests must be carried out to ensure that:

- hot work areas are free of flammable gas mixtures, and below the maximum allowable 5% Lower Explosive Limit (LEL);
- all work areas are preferably free of toxic gases, or levels are within acceptable 'Threshold Limit Value' (TLV) limits; and
- conditions of confined space entry meet regulatory requirements.

4.7.4.1 Servicing and Calibration of Gas Testing Instruments All gas testing instruments must be maintained in good working order and regularly calibrated as per the manufacturer's recommendations. A record of inspections and calibrations must be kept for each instrument.

Each instrument must carry a label identifying the instrument, show period of validity, date of last calibration, and initials of the issuing officer.

4.7.5 Hazardous Substances and Dangerous Goods

The handling, transport, storage, use and licensing of Dangerous Goods and Hazardous Material/ Substances shall be carried out in compliance with the WH&S Legislation (QLD), the current Hazardous Substances Code of Practice 2003 (QLD) and other relevant State legislation.

No substance or dangerous good shall be brought onto a CS Energy site for use or trial without a Material Safety Data Sheet (MSDS) having first been obtained and a risk assessment completed to ensure that it poses no major health or environmental risks.

The Chemical Approval Request Form (S0004) is used to document the risk assessment that has been undertaken prior to bringing new hazardous substances or dangerous goods onto site. The risk assessment and MSDS must be forwarded to the Site Manager for approval. Form S0004 is available on the CS Energy intranet or from the functional Health and Safety Coordinator for MCPS a risk to the H&S of contractors, visitors and CS Energy employees.

4.7.6 Manual Tasks

Manual Handling will be in accordance with the National Code of Practice for Manual Handling.

Wherever possible, a reduction in the amount of heavy manual handling must be sought by providing adequate mechanical means.

Risk assessments will take into consideration; the action and movements, duration and frequency, location of loads, distances moved, weights and forces, skills and experience, age, working posture and position.

Where identified necessary by the Risk Assessment process, control measures are to be used to reduce and minimise the risk of injury by such measures as:

- Job redesign
- Modify object or workplace layout
- Use mechanical handling equipment
- Modify task
- Training and instruction

4.7.7 Plant and Equipment

All plant and equipment used, including the hire of external plant, on the site shall be controlled in accordance with company policies and procedures.

Internal company owned plant shall be serviced, maintained and repaired in accordance with the piece of plant's relevant procedure.

Daily pre-operational checks shall be carried out on all items of plant by the operator/driver.

The Site Manager will ensure that only competent persons with the necessary certificates of competency/licences and industry experience will be engaged in the use and operation of plant as required by state legislation. Copies of certificates/licences shall be kept on file with the Administration Officer.

Potential hazards associated in the use of plant and equipment are to be identified, and appropriate controls implemented. Such controls shall include but are not limited to the following:

- A Permit to Dig is to be completed prior to the commencement of excavation works
- Personnel to remain clear of the swing area of cranes, excavators, backhoes and other similar plant
- Where personnel are required to approach working plant and equipment, contact must be established with the plant operator
- All plant and equipment are to be provided with working reversing beeper
- Blades, buckets, hook ends etc. on dozers, front end loader, back hoes, cranes and hoists etc must be lowered when not in use

- Blades, buckets etc are to be secured with an appropriate fixing pin. Hydraulically securing of blades, buckets etc only will not be sufficient
- Keys from all vehicular type plant, compressors and fixed cranes must be removed during non-working hours
- Exhaust gases and toxic fumes generated by plant and equipment are to be expelled from poorly ventilated work areas.

4.7.8 Crane Safety

All cranes and hoists and lifting gear used on CS Energy sites and examination of such equipment shall comply with AS 2550:2008 Cranes, Hoists & Winches – Safe Use set and relevant Parts of AS 1418:2009 Cranes, Hoists & Winches Set and recorded as applicable.

Cranes and hoists to be used on sites shall be registered with the Division of Workplace Health and Safety. The logbooks and a copy of the registration certificates are to be held with the Administration Officer. The Health & Safety Coordinator is to ensure that the registration number agrees with the registration certificate and is legible and prominently marked on each crane and hoist.

The test certificates for all wire ropes used on cranes and hoists are to be with the plant logbooks.

A competent person shall carry out inspections required by AS1418 and AS 2550.

The Health & Safety Coordinator is to ensure that there is a written inspection checklist for each crane and hoist for a daily and a fortnightly inspection. The inspection checklists are to be signed by the person performing the inspection and filed in the logbook.

A person shall not operate a crane or hoist unless authorised and familiar with the specific operational manuals.

The operation of cranes and hoists is to be strictly in accordance with AS 2550.

All lifting gear used on CS Energy sites shall comply with the relevant Australian Standards AS1418 and AS2550. A test certificate for lifting gear and lifting attachments shall be held in a register on the project.

The slinging of all loads is to be carried out by or under the direct supervision of a person holding a certificate of competency for crane operator, dogger or rigger.

Lifting gear, slings and shackles shall be marked and checked for compliance.

4.7.9 Positive and Effective Isolation

CS Energy manages plant isolation using the PTW system (CS-PTW-00). This system details the isolation and tag out processes that are designed to protect individuals from unauthorised energising of plant whilst it is being worked on. The PTW system complies with:

- Electrical Safety Act 2002
- Electrical Work Code of Practice 2002
- Plant Code of Practice 2005.

CS Energy's Isolation and Tag Out system indicates:

- That identified items of plant are de-energised
- Such identified plant must not be operated
- The status of the plant that should not be altered by anyone other than the job supervisor or the person that placed the tag

- That people are working on the tagged out plant and the isolations are critical to their safety.

The tag system encompasses:

- The Personal Danger tag which is primarily designed to give protection to individuals; and
- The Out of Service tag which is intended to prevent the use of unsafe equipment or to prohibit the use of plant or machinery as necessary in the interests of the safety or operational requirements.

4.7.10 Protective Clothing and Equipment

The MCPS Health & Safety Coordinator will ensure that all personnel receive instruction on the requirements of wearing and use of Personal Protective Equipment (**PPE**) at site induction with follow up and further instruction at tool box meetings when appropriate or applicable. In the workplace the Site Manager will be directly responsible for enforcement of these rules.

General rules for CS Energy worksites, requires that the following PPE be worn, and be in accordance with the following Australian Standards and Codes of Practice:

- AS 1336, AS 1337 and AS 1338 - Eye Protection
- AS 2210.1 and AS 2210.2 - Occupational Protective Footwear
- AS/NZS 1800 – Occupational Protective Helmets: Selection, Care and Use
- AS 1270 - Hearing Protection (as required)
- AS 2161 - Industrial Safety Gloves (as required)

It is the responsibility of CS Energy to provide all necessary PPE and training in its correct use to its employees; it is the responsibility of the user to maintain this equipment in good order and condition. Where PPE is damaged it will be replaced on an exchange of one damaged for one new item. Minimum PPE requirement at CS Energy sites are:

- Long Sleeve, high visibility cotton shirts
- Full length cotton pants
- Safety Glasses
- Hard Hats
- Safety Boots

4.7.11 Working at Heights

Risks must be managed if a person could fall less than 2 metres; to assist in identifying hazards where a person may fall and assessing and controlling the risks, consideration should be given to:

- previous injuries, 'near miss' incidents or accidents arising from falls which have occurred at the workplace or other similar workplaces
- relevant codes of practice and guidance notes
- consultation with employees, safety and health representatives, safety and health committees, self employed people and contractors to find out what problems may be associated with performing tasks/jobs
- walk through inspections of the workplace (consider using checklists)
- any other records or statistics which indicate potentially unsafe work practices.

Key things to check at the workplace include:

- surfaces
- levels
- structures
- the ground
- the raised working area
- scaffolding
- edges
- hand grip
- openings or holes which will require identification or protection or unguarded shafts or
- excavations
- proximity of employees to unsafe areas
- movement of plant or equipment
- access to, egress from and movement around the working area
- manual handling
- lighting
- weather conditions
- footwear and clothing
- ladders
- young, new or inexperienced employees.

For further information refer to CS Energy's Protection when Working at Heights CS-PTW-3.

4.7.12 Ladder Safety

All ladders used at MCPS will comply with the relevant part of AS/NZS 1892.5:2000 Portable Ladders.

- Make sure that ladders are not broken or damaged in any way
- A ladder must be placed securely against a solid backing at a safe angle of 75 degrees
- A ladder must extend at least one metre above the work level, and must be securely lashed in place
- Never stand on the top step or rung of a ladder
- Step ladders are not to be over three metres high
- Never splice two ladders together or use a step ladder as a straight ladder
- Ladders should be stored horizontally.

4.7.13 Digging & Excavation

All excavations and trenches deeper than 1.5 metres shall comply with the requirements of the *Workplace Health and Safety Regulations Part 20, in relation to pipeline excavation API 1166:2005 Excavation Monitoring and Observation*.

All excavations and trenches deeper than 1.5 metres shall be benched, battered or shored.

All excavation and trenches shall be provided with a suitable barrier or fence and be positioned appropriately in relation to the excavation or trench in accordance with the type of barrier, and must be signposted.

No material is to be stacked closer than 1 metre to the edge of the excavation or trench. This will prevent potential side loading or material falling into the trench.

Adequate strength shoring (or other approved means) shall be used to support any dislodgment of earth, rock or other materials within the excavation.

Site access and egress shall be provided to all excavation sites where people will undertake work. Safe access means, placement of ladders, ramps or stairways. Ladders must extend a minimum of 1 metre above the top of the excavation and be secured and anchored.

Always make sure that operating plant exhaust gases and fumes do not affect the excavation.

Excavations and trenches are to be inspected at prior to entry at the start of shift or after heavy or continuous rain.

Refer to Digging & Excavation Procedure CS-PTW-02 for further guidance and information.

4.7.14 Abrasive Blasting

As defined by Australian Standard 1627.4:2005 for Metal Finishing – Preparation and Pre-Treatment of Surfaces Part 4, Abrasive blasting is the technique of propelling abrasive material onto a surface e.g. a pipeline at high speed, using air pressure, water pressure or centrifugal force.

Hazards identified with Abrasive Blasting on CS Energy sites are:

- Noise
- Dust
- Mechanical
- Environmental

For further information refer to the Abrasive Blasting Code of Practice 2004.

4.7.15 Construction Work

CS Energy complies with the principals of appropriate and relevant elements of the Workplace Health and Safety Act 1995 and the Workplace Health and Safety Regulations 2008 whenever construction work is undertaken by or on behalf of CS Energy. Additionally, for pipeline operation repairs CS Energy complies with Australian Standard 2885.3 Pipeline – Gas and Liquid Petroleum Part 3: Operation and maintenance Clause 9.4.3 for construction safety.

4.7.16 Emergency Preparedness and Response

The Emergency Response Procedure has been developed using the technology that includes monitoring and detection equipment for the control and prevention of the hazards that may occur at site. Employees and all contractors that come to site are required to be trained on the application of the Emergency Response Procedure and their responsibilities within the procedure. This training is provided when they initially come on site and are required to review the procedure every 12 months.

While on site each employee typically carries a mobile radio and a mobile phone and has direct access to the Control Room Operator with the ability to report an emergency when required. In the control room, the Control Room Operator has

access to the land telephone system, mobile phone and the internet should they be required to initiate an emergency response.

An Emergency could include:

- Injured person
- Serious Injury / Fatality
- Vehicle Incidents
- Next of Kin Notification
- Fire / Bush Fires / Explosions
- Gas Incidents
- Environmental Incidents
- Electrical Incidents
- Confined Space
- Pipeline Incidents
- Threatening Phone Call / Bomb Threat.

All of which could require the assistance of outside emergency services.

When an emergency occurs on site, each person has a responsibility for their safety, and that of their fellow workers. When an emergency occurs, it must be immediately reported and the Emergency Response Procedure must be activated for the initiation of the appropriate emergency action.

The Emergency Response Plan includes the requirements for a site evacuation. The site evacuation is tested as required to:

- Facilitate a smooth and orderly evacuation;
- Ensure that the warning system is working and is heard by everyone onsite;
- Ensure that everyone is aware of the location of the evacuation assembly area;
- Ensure that exit paths and walkways are clear at all times;
- Ensure that there is a process for the accounting of all workers and visitors at the site; and
- Emergency response teams are notified as required.

Refer to the MCPS Emergency Response Plan for further information.

4.7.17 First Aid

CS Energy provides first aid coverage at all worksites and offices, this includes:

- Providing immediate first aid treatment of illness and injury at work
- Arranging for transportation to hospital, or ensuring the person requiring treatment is able to return home safely
- Maintaining treatment records
- Providing first aid services during emergency evacuation
- Identifying and reporting measures to reduce the incidence of repeat injuries
- Identifying and reporting health hazards
- Participation in first aid training and associated training programs.

4.7.18 Emergency Response Equipment

Emergency spare parts and emergency response equipment shall be checked against lists to ensure full response and repair capability.

5 MEASUREMENT AND EVALUATION

5.1 Monitoring and Measurement

5.1.1 Pre-Employment Medicals and Health Surveillance

Prior to engagement, MCPS employees will be required to undergo a pre-employment medical. The necessity for a pre-employment check is determined through risk evaluation, which takes into account the nature of the work to be performed. Pre-employment medicals establish a baseline of health assessment for employees and assist in ensuring they are capable of undertaking the work required of them at their commencement date. Refer to CS Energy's Procedure for Pre-Employment Health Assessments CS-OHS-10.

The Company is committed to ensuring that work processes are assessed for the identification and measurement of hazards, in this case, specifically health hazards.

Where employees are exposed to hazards which can affect the employee's health, CS Energy is committed to minimising the risk by ensuring that the requirements of the relevant standard for the control of the specific hazards are met.

Also CS Energy will regularly access workplaces, with employee consultation, for the purpose of identifying hazards and risk potential. Where necessary and upon reasonable request, the Company will provide for the monitoring of an employee's health in relation to exposure to specific hazards.

CS Energy will ensure that employees are informed of risks that they may be exposed to. When new hazards are identified current employees at risk of exposure will be advised and appropriate action taken.

Appropriate health surveillance processes will be implemented where the identified health hazards:

- Have the potential to cause an identifiable disease or illness;
- When there is an effective technique for detecting the health effect; and
- When there is a reasonable likelihood that exposure to the hazard will exceed set exposure limits (or the expected exposure levels to the hazard are unknown).

MCPS health surveillance program includes:

- Lead absorption tests.
- Asbestos monitoring.
- Silica monitoring.
- Hearing monitoring - audiometric tests are required for all employees who are regarded as being at risk of exposure to noise levels 85 dB (A) or more (for example, operators, technicians and commissioning staff. Ongoing audiometric tests are required:
 - For new employees
 - One year after Reference Test and then 24 monthly (depending on results)
 - For current employees
 - Either at 12 month or 24 monthly intervals depending on the results.

Health surveillance is not a control measure. It is a means of reviewing the effectiveness of control measures.

5.1.2 Fit for Duty

MCPS identifies that people's physical and psychological well being can be affected by their interaction within and external to the work environment. These effects can adversely influence how they function within the workplace and can lead to an increase potential for injuries and or illnesses to occur.

The fit for duty program is underpinned with a specific CS Energy policy and consists of:

- Pre-employment medicals for all staff
- Voluntary grief and stress professional counselling
- Mandatory annual medical testing, determined on a risk basis (i.e. skin checks for outdoor workers, hearing tests for workers exposed to a noisy environment)
- Work environment guidelines in the areas of weather considerations, work hours and supervision
- Critical incident counselling following a workplace incident
- Work and non work related injury management
- Management of alcohol and other drugs – for specific details refer to the procedure, Managing Alcohol and Other Drugs, CS-OHS-42, and policy.
- Management of fatigue - for specific details refer the procedure, Management of Fatigue, CS-OHS-12, and policy.

5.1.3 Inspection Program

Inspections are intended to identify areas of H&S improvement and are intended to provide a proactive inspection regime intended to identify any H&S issues on site. MCPS runs a proactive inspection regime to identify and manage risks. Site inspections are carried out as per the site inspection schedule.

5.2 Incident Management and Corrective Actions

Incident management is an integral element of this SMP and is the process of managing an incident should the risk control measures fail. The management of incidents include immediate actions, notification, reporting, recording, investigation and corrective action associated with health & safety, environmental, operational, security, information technology and fraud incidents.

Management actions taken in response of an incident are to initially protect and minimise the impact on persons, environment, facilities, production and the off-site community. Corrective measures implemented following an incident reduce the likelihood of reoccurrence.

The incident management process starts when the incident occurs and includes:

- providing injury treatment
- recording the incident
- conducting an incident investigation
- implementing corrective actions; and
- reporting and/or external notification to the regulator.

For further details refer to:

- CS Energy Health and Safety Manual, CS-OHS-M-01; and
- Procedure for Incident Management, CS-IM-01

5.2.1 Incident Reporting and Recording

All incidents including work related illness, disabling injuries, damage to plant, equipment or property, minor first aid injuries, near miss incidents and other serious incidents that could put workers or plant at risk, are to be reported to MCPS and investigated, in order to reduce the likelihood of their re-occurrence.

Incidents are recorded in the incident management database in SAP.

5.2.2 Investigation

The purpose of an incident investigation is to ensure that:

- the root cause/s of the incident is identified;
- control measures are implemented to eliminate or reduce the risk of the incident occurring again;
- accurate reports are provided to regulatory authorities; and
- accurate records of workplace injuries/incident are created and maintained.

Once an incident has been reported, the respective manager will initiate an initial incident investigation as soon as possible. If a significant incident occurs, senior management are to be notified immediately and a significant incident investigation shall be conducted. Interviews with people involved in the incident including witnesses shall be taken as part of the investigation process. Photographs should be taken to support the findings from an investigation. These steps are vital to ensure that all relevant facts are fresh in the minds of those involved.

The respective manager shall identify control measures and corrective actions, then introduce preventative action to stop the re-occurrence of future incidents.

Corrective action measures must be implemented at the earliest opportunity. Copies of the investigation report and incident report need to be kept on file for future reference.

Refer to Procedure for Incident Management, CS-IM-01

5.2.3 Incident Notification to Regulator

Prescribed incidents under the Petroleum and Gas (Production and Safety) Regulation 2004 are to be reported to:

- (i) Department of Employment, Economic Development and Innovation – Mines and Energy (**DEEDI**). Details are outlined in Table 2.

Incident	Way report must be given	When report must be given
An incident involving death of a person	By telephone In writing ¹	Immediately As soon as practicable
An incident involving injury to a person requiring medical treatment other than at the operating plant	By telephone In writing, if a written report is requested by an inspector	Immediately As soon as practicable
An emergency, including an emergency alarm activation other than as part of a routine test, at an operating plant that is a major hazard facility under the Dangerous Goods Act	by telephone	Immediately
	In writing	As soon as practicable

¹ "In Writing" includes electronic communication.

Incident	Way report must be given	When report must be given
A fire at an operating plant	By telephone In writing	Immediately As soon as practicable
An uncontrolled oil or gas leak attended by emergency services	In writing, if a written report is requested by an inspector	As soon as practicable
An incident with the potential to cause a general shortage of fuel gas in Queensland or an area of Queensland	By telephone In writing	Immediately As soon as practicable
An incident involving damage to property that substantially increases the risk of damage to plant or equipment or injury to persons	By telephone	Immediately

Table 2 – External Notification to DEEDI

(ii) Environment Protection Agency (**EPA**).

EPA Hotline 1300 130 372 and details are outlined in Table 3.

Spills	Spills of greater than 10l should be reported through the incident reporting system. The spill should be assessed to determine whether any immediate external assistance is required to contain the event. Any spill requiring off-site assistance to contain must be reported to the authorities. Where there is any risk of environmental harm e.g. contamination of surface or ground water this must also be reported. For spills or leaks greater than 20L in a single incident - EPA must be notified as per the requirements of the Environmental Protection Act 1994. For spills or leaks less than 20L in a single incident - EPA must be informed if there is the potential for material or serious environmental harm (e.g. 15L or a pesticide spills into a stream that feeds the local water supply).
Erosion/Turbidity	Erosion that is creating adverse impacts to the surrounding environment (e.g. turbidity in adjacent surface waters, threatening loss of vegetation) should be reported. Where turbidity has occurred, the receiving waters should be monitored as close to the event as possible and the results forwarded to the relevant agency (DNRMW and/or EPA).
Clearing of Protected Species without a permit	The clearing of threatened species as listed under various legislation (State and Commonwealth) is prohibited without an appropriate permit. All such areas have been marked on alignment sheets. Any clearing that inadvertently occurs without a permit must be reported.

Table 3 - External Notification to EPA

(iii) Workplace Health and Safety Queensland (**WHSQ**).

Written notification is required within *24 hours* of an incident on the approved form which is available on the WHSQ website. If the incident involves a *fatality*, immediate notification is required on 1300 369 915. Details are provided in Table 4.

Notifiable incident	<p>means an incident resulting in a person suffering a work injury that is</p> <ul style="list-style-type: none"> • a serious bodily injury, including a fatality • a work caused illness • a dangerous event
Serious bodily injury	<p>means an injury to a person that causes:</p> <ul style="list-style-type: none"> • the injured person's death; or • the loss of a distinct part or an organ of the injured person's body; or • the injured person to be absent from the person's voluntary or paid employment for more than four normal working days.
Work caused illness	<p>means an illness contracted by a person to which</p> <ul style="list-style-type: none"> • work, a workplace, a workplace activity or specified high risk plant was a significant contributing factor; or • the recurrence, aggravation, acceleration, exacerbation or deterioration in a person of an existing illness if work, a workplace, a workplace activity or specified high risk plant was a significant contributing factor to the recurrence, aggravation, acceleration, exacerbation or deterioration.
Dangerous event	<p>means an event caused by</p> <ul style="list-style-type: none"> • specified high risk plant; or • an event at a workplace caused by workplace activity if the event involves or could have involved exposure of persons to risk to their health and safety because of: <ul style="list-style-type: none"> - collapse, overturning, failure or malfunction of, or damage to, an item of specified high risk plant; or - collapse, or failure of an excavation or of any shoring supporting an excavation; or - collapse, or partial collapse of any part of a building or other structure; or - damage to any load bearing member of, or the failure of any brake, steering device or other control device of, a crane, hoist, conveyor, lift or escalator; or - implosion, explosion or fire; or - escape, spillage or leakage of any hazardous material or dangerous goods; or - fall or release from a height of any plant, substance or object; or - damage to a boiler, pressure vessel or refrigeration plant; or - uncontrolled explosion, fire or escape of gas or steam.

Table 4 - External Notification to WHSQ

(iv) Electrical safety Office (**ESO**).

A serious or dangerous electrical incident must be reported in writing (see Table 5) within 24 hours to the Chief Executive Officer, Department of Employment and Industrial Relations. If the incident involves a *fatality*, immediate notification is required on 1300 650 662.

A serious electrical incident	is an incident involving electrical equipment where – <ul style="list-style-type: none"> • A person is killed by electricity • A person receives a shock or injury from electricity, and is treated for the shock or injury by or under the supervision of a doctor; or • A person receives a shock or injury from electricity at high voltage, whether or not the person is treated for the shock or injury by or under the supervision of a doctor.
A dangerous electrical event	<ul style="list-style-type: none"> • When a person is not, or would not have been, electrically safe because of circumstances involving high voltage electrical equipment, where the person has not received a shock or injury; or • An event involving electrical equipment and in which significant property damage is caused directly by electricity or originates from electricity; or • The performance of electrical work by a person not authorised under an electrical work licence to perform the work; or • The performance of electrical work by a person if, a person or property is not electrically safe as a result of the performance of the work; or • The discovery by a licensed electrical worker of electrical equipment that has not been marked as required under the Electrical Safety Act 2002.

Table 5 - External Notification to ESO

(v) Workcover

Send the 'Employer's Report' to WorkCover Queensland within eight business days of:

- knowing about the injury;
- having the injury reported to you, or
- WorkCover Queensland requesting the information

The form is available at www.workcoverqld.com.au.

5.3 Annual Safety Report to the Regulator

The Annual Safety Report is prepared as a requirement under section 690 of the Petroleum and Gas (Production and Safety) Act 2004 (P&G Act). Under this section of the Act, the Executive Safety Manager for MCPS must provide the Queensland Mines and Energy (QME) an Annual Report by the 1st September of each year.

The report should be a concise document about the description, location and operational requirement of Operating Plant, as defined in the Petroleum and Gas (production and Safety) Act, at MCPS. The Operating Plant at MCPS includes the Gas Pipeline off take from the Carpentaria Gas Pipeline and the Gas Devices for power generation.

5.4 Continuous Improvement and Corrective Actions

MCPS endeavours to attain continuous improvement, and this is monitored through the audit, inspection and review processes. Some methods by which continuous improvement is achieved is by the use of hazard reports, general reports, audits, inspections, incidents, employee suggestions, and reviews of legislation, risk, procedures and plans.

Corrective and general actions are tracked through the CS Energy management meetings and it is the responsibility of the person assigned to address the corrective action, to ensure

its timely close out. Ultimately the General Manager Operations is responsible for their implementation and sign off.

5.5 Injury Management & Workers' Compensation

In the event of an incident, the area is to be made safe and priority given to providing immediate treatment to the injured party.

MCPS has personnel trained and certified in the provision of Senior First Aid or Occupational First Aid. If further immediate treatment is required, arrangements will be made to transport the injured party offsite for specialist medical treatment.

A Company Rehabilitation and Return to Work Program shall be implemented for any person who sustains a work injury and requires treatment by a Medical Practitioner. The purpose of the program is to provide the injured person with either an immediate return to work following medical treatment or a graduated return to normal duties as may be required, in conjunction with other treatments.

MCPS has personnel trained and certified in the provision of rehabilitation and return to work services. The role of these personnel is to develop and deliver return to work plans for injured persons.

For further information and guidance refer to Workplace Rehabilitation & WorkCover claims CS-OHS-4.

5.6 Records and Records Management

CS Energy is required to obtain and maintain records that are necessary to safely operate and maintain the pipeline and to determine the fitness for purpose of the pipeline at any stage of the pipeline operating life.

These records will include:

- Design, construction and commissioning records;
- Operation and maintenance records; and
- Abandonment records.

5.7 Operation and Maintenance Records

MCPS maintains extensive records that provide traceability of the design, standard of operation and maintenance of the assets, correspondence and all records related to the safety management system. Greater detail is provided in the Document Control Procedure.

Typical records will include:

- Permit to Work documentation
- Procedures and work instructions
- Supplier and contractor information
- Emergency contact details
- Training records
- Annual goals and targets and progress reviews
- Employee role purpose statements
- Risk assessments
- Inspection, calibration and maintenance activities
- Incident reports
- Induction records

- Change management requests
- HAZOPs
- Audit and inspection reports
- Asset Drawings

5.8 Safety Statistics

Health and safety incident and statistical reporting is used to record and report information regarding work related injury, disease, dangerous occurrence, near miss and plant and equipment damage. A summary of incidents and statistical information is produced on a monthly basis.

The Health & Safety Coordinator is responsible for ensuring all statistical information is compiled and issued the monthly report.

5.9 Auditing

MCPS will audit compliance with all Health and Safety Management Systems including pipeline specific safe operating systems and systems that ensure pipeline integrity.

Auditing provides a systematic and structured method of verifying that activities, protocols and practices comply with CS Energy’s targets and goals. These audits will be conducted against criteria set out within this SMP and will seek to identify compliance and performance. Other audits will be conducted using criteria such as: compliance with CS Energy risk management practices, return to work programs completed, compliance with legislative obligations, and H&S practices including any systems implemented by contractors to name a few.

Both internal and external audits shall occur and be conducted by experienced auditors. CS Energy is committed to conducting one full safety management system and operating audit at least annually. The degree of other systems auditing is outlined Table 6 below. Pipeline entities are also subject to periodic audits by the DEEDI. All audits shall follow accepted auditing practice and reports shall be generated following completion of an audit. This is to allow review by the team members involved and to have documented corrective actions.

Area of Management System	Frequency	Responsible Person
Workplace inspections <ul style="list-style-type: none"> • Facilities • Pipeline ROW • Bases 	Monthly Asset specific Six monthly	All staff All Staff Site Manager
Work Method Practices <ul style="list-style-type: none"> • Inspections to measure conformance with Procedures and Work Instructions • Full internal system audit; compliance with Procedures, Work Instructions and JSEA’s 	6 monthly Annually	Site Manager Health & Safety Coordinator
Safety Management System <ul style="list-style-type: none"> • Full external systems audit • Full internal systems audit 	Two yearly Annually	Health & Safety Coordinator Health & Safety Coordinator
Preventative Maintenance <ul style="list-style-type: none"> • Full system audit 	Annually	Engineering Superintendent
Emergency Response Plan <ul style="list-style-type: none"> • Full internal system audit 	Annually	Health & Safety Coordinator

Training and Competency Management <ul style="list-style-type: none"> • Full internal system audit 	Annually	Health & Safety Coordinator
Compliance Management <ul style="list-style-type: none"> • Full internal system audit. 	Annually	Health & Safety Coordinator

Table 6 - Audit details

In addition, at each monthly safety meeting, the progress toward achieving the year’s goals and targets shall be reviewed.

5.9.1 Audit Findings

Information gathered during these audits will support or augment H&S data submitted to the Company within monthly or quarterly reports.

Audit findings will be discussed and agreed with the person responsible for the area being audited. Identified non-conformances shall, where possible, determine a corrective action and time frame for finalising.

Copies of the audit reports shall be issued to Site Manager. Where appropriate these audit findings and recommended corrective action shall be discussed during:

- Toolbox Talk meetings;
- Health and safety committee meetings; and
- Bi-weekly management safety meetings.

All action taken to correct non-conformances shall be subjected to a further audit. The timing of these further audits will vary depending upon such considerations as:

- The nature and extent of non-compliance.
- The presence of risk at the workplace.
- The timing of any other audits planned for the site.

6 MANAGEMENT REVIEW

To achieve continual improvement, it is essential to develop and implement corrective actions to address any system deficiencies. Corrective actions related to the safety management system may be derived through:

- workplace inspection non conformances;
- audit reports – corrective actions;
- incident report corrective actions;
- hazard reports;
- HAZOP / HAZID reviews;
- emergency response exercise reports;
- change Management request evaluations;
- regular feedback and workplace inspections;
- risks identified in JSEA and other work activity risk reviews;
- working towards annual H&S system management goals and targets;
- employee health surveillance briefs;
- changes in legal or industry requirements;
- insurance workplace inspections;
- meetings (e.g. team, safety, management); and
- CS Energy requirements.

7 MCPS GAS PIPELINE – SAFETY AND OPERATING PLAN

A Safety and Operating Plan (**SOP**) sets out the requirements of AS2885 – Pipelines, Gas and Liquid Petroleum, Part 3: Operation and Maintenance.

7.1 MCPS Gas Pipeline

The MCPS Gas Pipeline is a total length of approximately 1750 m, and range in size from DN 100 to DN 300 with a MAOP of 3300 kPa. It supplies gas to the gas turbines and boilers within the MCPS.

7.1.1 Gas Pipeline Description

The MCPS Gas Pipeline is a total length of approximately 1750 m, and range in size from DN 100 to DN 300 with a MAOP of 3300 kPa. It supplies gas to the gas turbines and boilers within the MCPS. The specific details of the pipeline are in Table 7.

Aspect	Details
Pipeline Licence No.	PPL49
Environmental Authority	Pending
Commissioning Date	August 1999
Ownership history	CS Energy
Route of pipeline	APA Gate Station to Mica Creek Power Station as per Metrotech drawing 1016-GGS-01
MAOP	3,300 kPa @ 85oC
Diameter	323.9, 273, 219.1, 168.3, 114.3
Gas Type	High Pressure Natural Gas
Custody Transfer of Gas	Insulation Joint downstream of the block valve with the APA Gate Station (adjacent MCPS)
Facilities	
Western Section	
Eastern Section	
Emergency Shutdown	
General Mechanisms	Emergency Stop Devices are signed and includes block valves and trips.
Corrosion Protection	
Mitigation system	Sacrificial Anode – 5 Beds
Operational Bases	
CS Energy Power	MCPS & Brisbane

Table 7 - MCPS Gas Pipeline details

7.1.2 Gas Transmission and Linepack Management

Due to the short length of the pipeline from the APA emergency shutoff valve linepack is minimal. Gas is regulated into the pipeline at a pressure of >3300kPa from the APA Carpentaria Gas Pipeline.

7.1.3 Pipeline Routes and Specifications

The Gas Pipeline Offtake interfaces with the Carpentaria Gas Pipeline at the AGL Metering Station adjacent the north-west corner of the power station yard, intersection with lease boundary 84° 28' 20" and 25° 12' 10".

The total length of pipeline is 1.775 km which includes 2 off-takes supplying turbines and boilers.

The gas pipeline starts inside the APA Gate Station (adjacent MCPS) at the insulated joint downstream of the block valve then runs underground to the NW corner of MCPS site, parallel to Diamantina Developmental Road. Once within the Power Station compound the pipeline runs primarily aboveground along northern boundary to Units A where it diverges to the various gas skids. A branch line runs south to supply the Units B and C. For road crossings and points where additional protection is required the pipeline is buried.

The pipe diameter specifications are as follows:

- Section 1 - 100 mm – Length 0.2 km
- Section 2 - 150 mm – Length 0.135 km
- Section 3 - 200 mm – Length 0.36 km
- Section 4 - 250 mm – Length 0.49 km
- Section 5 - 300 mm – Length 0.47 km
- Section 6 - 450 mm – Length 0.12 km

Refer to Appendix 2 for pipeline and appliance drawings.

7.1.4 Gas Suppliers

The gas into the MCPS Gas Pipeline is supplied by Santos via the APA Carpentaria Gas Pipeline (**CGP**).

7.2 Safety Management Study

A Safety Management Study was completed 21st May 2009 in accordance with AS2885.1. In brief, this process involved a:

- location analysis (which Identifies land use, classification and land type);
- threat analysis (Identifying potential threats to pipeline integrity in specific and general locations of the pipeline);
- failure analysis of hazardous events (Threats not able to be eliminated become hazardous events and require failure analysis); and
- risk evaluation (Dependent on results of failure analysis and assessment of consequence and likelihood).

All reports generated by the risk assessment process are to be stored with other relevant MCPS records system. In accordance with the commitment within AS2885, the minimum requirement of five yearly risk assessments will be achieved. Risk assessments shall also be undertaken whenever there is a significant change proposed to any of the pipeline assets, following any significant incident, or at the instigation of the Site Manager.

Reports are produced and outcomes recorded in the CS Energy Document Control database following any risk assessment workshop; which are then integrated into the Alignment Drawings. Alignment Drawings are used to track pipeline and facility assets. The resultant actions are reviewed regularly until completion and satisfactory outcome of all actions achieved. The Site Manager is responsible for the timely sign off of all identified threats as ALARP.

From these studies a number of risks that apply to MCPS Gas Pipeline were identified and detailed in Table 8.

Risks	Primary Controls
External Interference	<ul style="list-style-type: none"> • Separation by burial • Resistance to penetration due to wall thickness • One call systems (Dial Before You Dig 1100 & emergency Numbers) • Third party awareness • Pipeline markings • Permit to Work • Patrolling
Corrosion	<ul style="list-style-type: none"> • Cathodic protection and coating
Natural events	<ul style="list-style-type: none"> • Depth of burial resistance to erosion
Electrical effects	<ul style="list-style-type: none"> • Earthing
Operations and maintenance activities	<ul style="list-style-type: none"> • Permit To Work systems • Annual Plan for Maintenance
Design defects	<ul style="list-style-type: none"> • Construction quality assurance
Material defects	<ul style="list-style-type: none"> • Material certificates and construction quality assurance
Intentional damage	<ul style="list-style-type: none"> • Refer to external interference
Other threats such as seismic and blasting	<ul style="list-style-type: none"> • Permit to Work systems • Stakeholder awareness • Dial Before You Dig (DBYD)

Table 8 - Risk to Gas Pipeline

Effective controls for each of the threats identified above are to be applied using a systematic process. Physical and procedural controls shall be applied to all credible external interference threats. Refer to the Safety Management Study for a full assessment and relevant control measures.

7.3 Maintenance Management System

7.3.1 Maintenance Planning

Maintenance schedules and plans shall be developed to assist with meeting legislative compliance demands. They also assist with the overall planning function, determining resource requirements, scheduling and costing. The maintenance and operation schedules for the pipeline asset will include the following at a minimum:

- cathodic protection surveys and audits;

- leak survey and detection analysis;
- corrosion protection surveys and audit;
- ongoing inspections of areas identified in the risk assessment process;
- instrument inspection and calibration;
- patrols and inspections

As referred to previously, CS Energy manages its maintenance and inspection requirements through a maintenance management system, this system is used to manage all planned maintenance activities across the MCPS Operations and has scheduling, defect, work activity and procurement tracking capability. The periodic activities required to be undertaken to maintain operations in legislative compliance and with good structural integrity shall be input into the maintenance package by the Corporate Health & Safety Group. Ultimately, ensuring the work activities are completed in a timely fashion is the responsibility of the Site Manager.

7.3.2 Right of Way Management

MCPS Gas Pipeline right of way (**ROW**) begins at the rear of the MCPS Boundary fence, near the diesel tanks behind C-Station, and finishes at the site boundary near A-Station meter station and shall be 'walked' at the completion of the pipeline as per the pipeline asset management strategy.

The following is to be reviewed and reported on during each inspection:

- soil stability and erosion effects;
- vegetation re-growth;
- weed spread;
- third party activity;
- pipeline warning sign integrity; and
- condition of pipeline hardware.
- the basic principles of Right of Way management are embodied in the:
 - environmental and Cultural Heritage Management Plan; and
 - stakeholder Pipeline Awareness Procedures.

7.3.3 Gas Pipeline Signage

AS2885 requires that gas and liquid petroleum pipelines are signed so that they can be identified from the air, ground or both.

The sign spacing for MCPS Gas Pipeline is in accordance with the outcomes of the pipeline safety management study, and/or shall not exceed the maximum spacing requirements for the different location classes as shown below in Table 9.

Location Class	Maximum Sign Spacing (m)
R1 – Broad rural*	500
R2 – Semi- rural*	250
T1 – Suburban*	100
T2 – High rise*	50 or inter visible

Table 9 -Sign spacing

* For more detailed information on the location classifications, refer to AS2885.1 – Pipelines Gas and Petroleum Part 1 Design and Construction, Section 4.4.1

7.3.4 Major Works

For the completion of major works HAZOPS are conducted. HAZOPS are always conducted using facilitators and multi-disciplinary assessment teams. HAZOPS are employed for any new pipeline and if significant plant modifications are planned.

Outstanding risks from HAZOPS are managed by the Engineering Superintendent until satisfactory close out which occurs once the risk is deemed ALARP. Actions where appropriate are incorporated into the MCPS risk database.

7.3.5 Third Party Communication / Activities on ROW

Effective communication with APA and other relevant third parties are critical to maximise pipeline integrity protection.

All third party work on the ROW must be notified to MCPS through the DBYD service. Once notified of proposed or definite work, MCPS employees will locate the pipeline and supervise any work that has the potential to impact on the pipeline's integrity or the environmental conditions that the asset must meet.

CS Energy will ensure they identify potential contract organisations, councils, etc and ensure they are made aware of the MCPS requirements to monitor and supervise work over the ROW.

7.3.6 Dial Before You Dig (DBYD)

MCPS Gas Pipeline is registered with the **National DBYD Service**. This is a referral service that requests information from underground asset owners, who are members of the DBYD service. The national Dial Before You Dig contact number is **1100**. This service enables individuals to excavate responsibly with CS Energy's authorisation and to minimise the risk of injury to people and damage to buried services. This number is promoted to all Third Party Stakeholders / Contractors.

Upon receiving a DBYD request, MCPS shall assist the inquirer by providing prompt information and supervision of the activity, if required.

7.4 Pipeline Integrity Management

Pipeline Integrity management control systems ensures that the high pressure pipeline infrastructure remains fit for purpose by implementing a systematic approach to the utilisation of resources on; high pressure pipeline system design, construction, operation and maintenance activities and the application of sound engineering principles with due regard to safety and the environment. These elements are:

- protective coatings;
- wall thickness and material quality;
- cathodic protection and corrosion control;
- pressure control and protective equipment;
- station Ancillary equipment (compression equipment, metering, valves, traps, vessels, pipe supports, Generators, electrical switchboards/wiring);
- gas Quality;
- casings;
- joints;
- right of way (ROW) Management; and
- hazardous areas.

For further information on MCPS integrity management refer to the MCPS Gas Pipeline Structural Integrity Plan.

7.4.1 Supervisory Control and Data Acquisition (SCADA)

CS Energy has a SCADA system for the assets it operates and maintains. The SCADA system forms one of the primary measures for integrity monitoring and data collection of energy accounting figures. The SCADA systems will be standardised to allow employees from any pipeline asset to view and assist in analysis across assets operated by CS Energy.

It is CS Energy's intention that plant areas with sites of high activity are fitted with 24 hour, stand-alone, live backup SCADA monitoring. SCADA also monitors control systems such as alarms, pressure and temperature control, and emergency shutdown systems.

Control Room staff is alerted to unexpected changes and subsequently the risk of an incident is reduced, or conversely the opportunity for prompt response to any incident is increased. The Control Room employees have a consultative approach to resolution of these issues. This system is managed by the MCPS Operations Superintendent.

7.5 Emergency Response Plan

The pipeline operator ensures that the pipeline at MCPS is suitably prepared and equipped for initial response in the event of an emergency. This involves the provision of necessary resources, procedures, training, and development of working relationships with landowners, localised emergency services and regulatory authorities.

Engineering and support personnel will be utilised from appropriately trained personnel from the MCPS and local Emergency Services. Personnel will be mobilised to site immediately an emergency situation is identified.

Specialist services personnel will be contracted to respond to an emergency situation, i.e. specialist services such as welding and NDT organisation will be mobilised as required.

CS Energy has developed a Pipeline Specific Emergency Response Plan (ERP) in consultation with Emergency Response Manual which aligns with the requirements of AS2885 Section 4 and Section 7.

As risk assessment processes identify new possible emergencies, they will be incorporated into the ERP. Refer to the Emergency Response Manual for the working document that is used during a pipeline event. It sets out, in order, the activities needed to control an emergency situation. Emergency response simulations and exercises shall be carried out annually for CS Energy staff and stakeholders.

Refer to The Engineering Management Plan for repair methods and other engineering issues associated with pipeline repair.

8 POWER STATION – TYPE B APPLIANCES

The major Type B gas appliances at MCPS are listed in Table 10.

Appliance	Maker	Model
Unit A1 Boiler	Babcock	Legacy Boiler
Unit A2 Boiler	Babcock	Legacy Boiler
Unit A3 Boiler	Babcock	Legacy Boiler
Unit A4 Boiler	Babcock	Legacy Boiler
Unit A6 Gas Turbine	European Gas Turbines, GEC Alstrom	PG6551B
A6 HRSG	Rico	N/A
Unit A7 Gas Turbine	European Gas Turbines, GEC Alstrom	PG6551B
A7 HRSG	Rico	N/A
Unit B1 Gas Turbine	John Brown Engineering	PG6541B
Unit C1 Gas Turbine	European Gas Turbines, GEC Alstrom	PG6561B
Unit M1 Gas Turbine	SOLAR Turbines	Taurus T60
Unit M2 Gas Turbine	SOLAR Turbines	Taurus T60
Unit M3 Gas Turbine	SOLAR Turbines	Titan T130 (Pending)

Table 10 - MCPS Major Type B gas appliances

9 GLOSSARY

Audit	<p>A systematic examination against defined criteria to determine whether activities conform to planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve the organisation's policy and objectives.</p>
Permit to Work	<p>The organisation's safe system of work consisting of work control documents which assist in work being carried out safely.</p>
AS 2885	<p>Australian Standard - Pipelines – Gas and Liquid Petroleum has the objective of providing the requirements for the design, construction and operation of steel pipelines and associated piping and components used to transmit single and multiphase hydrocarbon liquids.</p> <p>It currently has five parts, four of which specifically relate to CS Energy Assets:</p> <ul style="list-style-type: none">• Design and construction• Welding• Operation and maintenance• Field pressure testing
Competent Persons	<p>A person who has acquired through training, qualification, experience, or a combination of these, the knowledge and skills qualifying that person to perform a task.</p>
Dangerous Event	<ul style="list-style-type: none">• An event caused by specified high risk plant;• An event at a workplace caused by workplace activity; and• If the event involves or could have involved exposure of persons to risk their health and safety because of:<ul style="list-style-type: none">- Collapse, overturning, failure or malfunction of, or damage to, an item of specified high risk plant;- Collapse, or failure of an excavation or of any shoring supporting an excavation;- Damage to any load bearing member of, or the failure of any brake, steering device or other control device of, a crane, hoist, conveyor, lift or escalator;- Implosion, explosion or fire;- Escape, spillage or leakage of any hazardous material or dangerous goods;- Fall or release from a height of any plant, substance or object;- Damage to a boiler, pressure vessel or refrigeration plant; and- Uncontrolled explosion, fire or escape of gas or steam.
Dangerous Electrical Event	<p>Section 12 of the Electrical Safety Act 2002 defines a dangerous electrical incident as including:</p> <ul style="list-style-type: none">• Events involving electrical equipment and in which electricity causes significant property damage;• Unlicensed or unauthorised electrical work;

	<ul style="list-style-type: none"> • Unsafe electrical work or unmarked electrical equipment is found; and • Other incidents involving high voltage where a person does not receive a shock or injury but the person was not electrically safe, or had they been present they would not have been electrically safe.
Delivery Point	Any point along the pipeline that has the purpose of delivering gas to a customer.
Emergency Services	Organisations that provide emergency response assistance and include the Police, Ambulance service, State Emergency Services, Queensland Fire and Rescue Services and the Rural Fire Authority.
Gas Work	Gas work is the work of installing, removing, altering, repairing, servicing, testing or certifying the gas system of a gas device. Refer to Section 725, Petroleum and Gas (Production and Safety) Act 2004.
Hazard	A source or situation with a potential for harm in times of human injury, damage to property, damage to the environment, or a combination of these.
Hazard Identification	The process of recognising that a hazard exists and defining its characteristics.
Health Surveillance	Monitoring of individuals for the purpose of identifying changes in health status that may be due to occupational exposure to a hazard.
Hazard Alert	A brief summary document (usually one page) issued to relevant staff, businesses or areas, indicating a potential safety issue which needs to be communicated.
HAZOP	Hazard and Operability Study. A facilitated and systematically executed risk assessment process with a multi-disciplinary team, usually applied in the design phase of an operation.
CHAZOP	Control Hazard and Operability study. A systematic risk assessment process with a multi-disciplinary team which is related purely to the computer control systems of an operation.
Incident	An unplanned event resulting in, or having a potential for injury, ill health, damage or other loss.
Job Safety & Environmental Analysis	A document derived from systematic evaluation of a work activity that identifies potential hazards and their controls. JSEAs incorporate a review of the site conditions. The associated safety, environmental and stakeholder hazards are identified, risk assessed and controls specified to reduce the risks to as low as reasonably practicable.
Lag Indicator	Performance indicator that reflects things or events that have already occurred.
Lead Indicator	Performance indicators that reflect trends of a predictive nature, enabling measures to be put in place before adverse events or things occur.
Plant	Any facility, equipment connected or otherwise that is related to the transport of high pressure gas from receipt point to delivery point.

Receipt Point	Any point on the pipeline whose normal function is to receive gas to be transported through the pipeline.
Risk	The consideration of both the likelihood of a negative outcome and the consequences of that outcome occurring. For example a high likelihood of injury or harm occurring would equate to a high risk.
Risk Assessment	Overall process of estimating the magnitude of risk and subsequently deciding what actions will be taken to reduce the risk to ALARP.
Serious Bodily Injury	An injury to a person that causes: <ul style="list-style-type: none"> • The injured person's death; • The loss of a distinct part or an organ of the injured person's body; • The injured person to be absent from the person's voluntary or paid employment for more than four normal working days.
Serious Electrical Incident	Section 11 of the Electrical Safety Act 2002 defines a serious electrical incident as being incidents caused by electricity that: <ul style="list-style-type: none"> • Results in death; • Results in a shock or injury requiring medical treatment by, or under the supervision of a doctor; and • A person receives a shock or injury from electricity at high voltage, whether or not the person requires medical treatment by, or under the supervision of a doctor.
Procedure	A document that details how to successfully complete a work activity. SOPs highlight areas of risk and incorporate strategies to reduce those risks. All elevated risk; routine work shall have an associated SOP.
Toolbox Talk Meeting	Workplace meeting used to discuss safety, environmental or other issues of importance.
Type B Gas Appliance	A type B gas appliance is a device (other than a Type A device) used, or designed or intended for use for a purpose: <ol style="list-style-type: none"> (a) for production of heat, light or power using fuel gas; or (b) for refrigeration for which fuel gas is the fuel; or (c) as a propellant. <p><i>Example</i> - major industrial plant</p> <p>Refer to Section 724, Petroleum and Gas (Production and Safety) Act 2004</p>
Work Injury	<ul style="list-style-type: none"> • An injury to a person that requires first aid or medical treatment if the injury was caused by work, a workplace, a workplace activity or specified high risk plant; and • The recurrence, aggravation, acceleration, exacerbation or deterioration of any existing injury in a person if: <ul style="list-style-type: none"> - First aid or medical treatment is required for the injury; - Work, a workplace, workplace activity or specified high risk plant caused the recurrence, aggravation, acceleration, exacerbation or deterioration; and - Any serious bodily injury, if the injury was caused by

work, a workplace, a workplace activity or specified high risk plant.

Work Caused Illness

- An illness contracted by a person to which work, a workplace, a workplace activity or specified high risk plant was a significant contributing factor; and
- The recurrence, aggravation, acceleration, exacerbation or deterioration in a person of an existing illness if work, a workplace, a workplace activity or specified high risk plant was a significant contributing factor to the recurrence, aggravation, acceleration, exacerbation or deterioration.

10 REFERENCES

The main reference documents are:


- Queensland Workplace Health and Safety Act 1995 and Regulation 2008
- Queensland Electrical Safety Act 2002 and Regulation 2002
- Petroleum and Gas (Production and Safety) Act 2004
- AS 2885 Pipelines – Gas and Liquid Petroleum
- AS 3814 – Industrial and Commercial Gas-fired appliances
- CS Energy Health and Safety Policy
- CS Energy Health and Safety Manual, CS-OHS-M-01
- CS Energy Procedure for Health and Safety Life Savers, CS-OHS-49
- CS Energy Procedure for Health and Safety Minimum Standards for Critical Risks, CS-OHS-48
- CS Energy Procedure for Fair and Just Culture, CS-OHS-47
- CS Energy Procedure for Health and Safety Life Savers, CS-OHS-49
- CS Energy Procedure for Incident Management, CS-IM-01
- MCPS Emergency Response Plan

Other relevant acts, regulations, standards and codes of practices as set out in Appendix 1.

APPENDIX 1 – Other Reference Documents

AS 2177:2006 Non Destructive Testing
AS 3806:2006 Compliance Programs
AS/NZS 4360:2004 Risk Management
HB 436:2004 Risk Management Guidelines Companion
Plant Code of Practice 2005
Electrical Work Code of Practice 2002
AS 3000:2007 Wiring Rules
AS 2177:2006 Non Destructive Testing
AS 1336:1997 Recommended Practices for Occupational Eye Protection
AS 1338:1992 Filters for Eye Protection
AS 1674.1:1997 Safety in Welding and Allied Processes; Fire Precautions
AS 1674.2:2007 Safety in Welding and Allied Processes; Electrical
WTIA Technical Note 7 : Health and Safety in Welding
AS 2865:1995 Safe Working in a Confined Space
Hazardous Substances Code of Practice 2003
National Code of Practice for Manual Handling
AS 2550:2008 Cranes, Hoists and Winches – Safe Use Set
AS 1418:2009 Cranes, Hoists and Winches Set
Mobile Crane Code of Practice 2006
AS/NZS 1336:1997 Recommended Practices for Occupational Eye Protection
AS/NZS 1337:1992 Eye protectors for Industrial Applications
AS/NZS 1338:1992 Filters for Eye Protection
AS/NZS 2210.1:1994 Occupational Protective Footwear – Guide to Selection, Care and Use
AS/NZS 2210.2:1994 Occupational Protective Footwear – Requirements and Test Methods
AS/NZS 1270:2002 Acoustics – Hearing Protection
AS/NZS 2161:2008 Industrial Safety Gloves
AS/NZS 1800:1998 Occupational Protective Helmets – Selection, Care and Use
Formwork Code of Practice 2006
Scaffolding Code of Practice 2009
AS/NZS 1892.5:2000 Portable Ladders
AS 1627.4:2005 Metal Finishing – Preparation and Pre-treatment of Surfaces, Part 4
API 1166:2005 Excavation Monitoring and Observation
Abrasive Blasting Code of Practice 2004
First Aid Code of Practice 2004
AS 1885.1:1990 Workplace Injury and Disease Recording Standard

APPENDIX 2 – KPIs for Health and Safety Business Plan

													
Health & Safety SCORECARD . . . FY2010/11 <i>Plan on a Page</i>													
Our Mission			Strategic Health & Safety Goals						Key Health & Safety Focus Areas				
Managing our People & Plant to deliver the Best in class Health & Safety outcomes.			<ol style="list-style-type: none"> Safe & efficient operator of reliable generation plant. Having people with commitment and skills to deliver business outcomes 						<ol style="list-style-type: none"> Leadership Capability Robust Business Health & Safety Systems Right Skilled People 				
People			Portfolio Performance			Future			Social Licence			Our Team	
Goals	KPI	FY 2010/11	Each Year	KPI	FY 2010/11	Each Year	KPI	FY 2010/11	Each Year	KPI	FY 2010/11	Each Year	Our Team Michael Turner Alistair Brown Frank Welch Bruce Johnson Simon Henry-Schwarzen Christine Wayne Nathaniel Bougoure
	LTIFR	< 4	-20%	Corrective Actions Overdue	< 10%	< 10%	"Generating Insights" Rating	54	+10%	Statutory Compliance	0	0	
	TCRFR	< 22	-20%	Contractor Management Compliance to H&S Plan	> 90%	> 90%							
	Cat 3 FR	< 28	-20%	Benchmarking against industry leading practice	2.75	+10%							
	AIFR	< 120	-10%										
	LTISR	< 54	-20%										
	Toolbox Talk Occurrences	> 95%	> 95%										
	Behavioural Observation Occurrences	> 95%	> 95%										
	Workplace Inspection Occurrences	> 95%	> 95%										
	Training Compliance	100%	100%										
Personal Safety Plans	100%	100%											
Initiatives	<ol style="list-style-type: none"> Fair and Just Culture Behavioural Safety Leading Indicators Fatigue Management Mental Health and Well-being Program 			<ol style="list-style-type: none"> H&S Management System <ul style="list-style-type: none"> Incident investigation standardisation Supporting procedures and tools Contractor Management Safety Management Plans – Gas, Hazardous Substances & Dangerous Goods, Electrical Risk Registers Job safety Environment Analysis Project 			<ol style="list-style-type: none"> Safety Culture Program – includes initiatives across all areas such as New Directive Taskforce, fair and just culture, leading indicators, health and safety management system. 						