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Arrow HSE Standards Compendium

Standards for the management of Health, Safety and Environment

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Version 5.0 March 2021

Safe Work. Strong Business.

target zero

HSE Management Standards Compendium

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Health Safety and Environment Policy

Policy statement

Safe work is essential to having a **strong business.** Arrow is committed to:

- achieving target zero - no harm to people
- protecting the environment.

Expectations

All personnel are expected to:

- be 'fit for duty'
- follow the 12 Life Saving Rules
- stop work or intervene when faced with a situation believed to be unsafe
- comply with HSE Management System requirements and HSE legislation
- plan ahead to minimise and manage Health Safety and Environment (HSE) risks.

Measures

Arrow will fully support the implementation of this Policy by:

- providing sufficient resources, systems and training to effectively manage HSE risks
- setting out clearly the HSE requirements and regulatory obligations via the HSE Management System
- ensuring that HSE requirements are met
- tracking HSE performance and setting targets for continuous improvement
- learning from incidents to improve our HSE performance
- protecting personnel from occupational injuries and illnesses
- conducting an annual HSE Management System review to confirm effectiveness
- promoting fitness for work including zero tolerance to working or driving under the influence of drugs or alcohol
- minimising the environmental impact of our operations
- efficiently and responsibly using energy and natural resources to provide our products and services
- implementing the principles of sustainable development.

Behaviours

We expect all Arrow staff and contractors to be visible safety leaders, create safe work environments and ensure the safety of others. Arrow supports them in exhibiting this behaviour which is consistent with the **SAFER** framework:

S **Safety leadership:** everyone has a role to play in practicing visible safety leadership.

A **Assess the risks:** be aware of hazards and use risk assessment tools to keep safe. Ensure effective controls are in place.

F **Follow the rules:** understand and follow the rules. Stop and ask when unsure.

E **Engage in safety conversations:** Have the courage to undertake safety conversations and, the character to accept them with respect.

R **Respect:** apply visible safety leadership with respect.

HSE leadership and performance will be assessed in the appraisal of all staff.

Scope and responsibility

This Policy applies to all personnel involved in Arrow activities, including contractors.

Each employee, contractor and service provider is responsible for actively following this Policy.

Line managers are responsible for the safety of their teams via the implementation of this policy and the HSE Management System.

Cecile Wake, Chief Executive Officer
January 2020

Contents

Introduction

This document sets out the Arrow Energy Health Safety and Environment (HSE) Standards. The HSE Standards provide a set of consistent and objective HSE requirements that have mandatory application across Arrow's business and contractors.

Arrow's HSE Policy commitments are implemented through the Arrow HSE Management System (HSE MS). The HSE Standards form a key component of Arrow's HSE MS.

Arrow HSE Management System

Arrow's HSE MS is a series of controlled documents that enable Arrow to effectively manage its Health Safety and Environmental practices in a consistent way.

The Arrow HSE MS is a key component in meeting legislative HSE requirements from both the Work Health and Safety Act 2011 (WHS Act) and the Petroleum and Gas (Production and Safety) Act (P&G Act).

The P&G Act requires Arrow to maintain a Safety Management System (SMS). To effectively address all of the P&G requirements, documents and processes multiple documents from across Arrow departments are required in addition to the Arrow HSE MS.

To meet the requirement for a Safety Management System under the P&G Act, Arrow has developed a Safety Compliance Mapping Table which maps requirements to applicable Arrow documents and processes.

The Arrow Safety Compliance Mapping Table and the documents and processes that it references constitute the Arrow Safety Management System.

The HSE Standards and their associated documents fall into following categories which are:

Management System
Covers organisation, leadership and commitment, policy and strategic objectives, resources and documentation, hazard management, planning and permit to work.

Personal Safety
Addresses high risk safety aspects that can have a direct and immediate effect on a person's safety, for example working in confined spaces or at heights.

Security and Incident Response
Arrow's requirements around incident management, security, crisis and emergency preparedness and response.

Health and Hygiene
Sets requirements for on fitness for work, alcohol and other drugs and occupational health and hygiene.

Environment
Details Arrow's direction on issues including biodiversity, water, waste and greenhouse emissions.

Process Safety
Manages risk associated with design, construction, operation and safeguarding of our process related safety systems.

HSE Policy

The HSE Policy establishes the overall principals that underpin Arrow's approach to Health, Safety and Environment and Arrow's commitment to target zero. Arrow's HSE Policy is supported by the HSE standards.

HSE Standards

Arrow HSE Standards clearly sets out the minimum, mandatory requirements for Arrow and contractors.

Arrow's HSE Standards:

- set and formalise expectations to staff and contractors
- define ***what*** must be achieved in relation to HSE at Arrow
- provide auditable criteria
- establish a basis to drive continual improvement.

Procedures

Procedures provide detailed instructions on how Arrow meets and implements a particular HSE Standard, or elements thereof. These are mandatory for Arrow activities and for contractors operating under Arrow systems.

Arrow requires contractors operating under their own HSE systems (Mode 2) to have documented procedures that meet or exceed the requirements of both the Standard and the associated contractor applicable procedure(s).

A subset of Arrow's Procedures are applicable to contractors – where applicable to the scope of work contractor must adopt the Arrow procedure. Contractor applicable procedures are documents named in a HSE Standard (refer to Table 1 Contractor Applicable Procedures).

Application to Contractors

Arrow has a HSE assurance process that aligns with the major phases of the Arrow contracting process for suppliers/contractors who are required to meet Arrow HSE requirements as detailed in Figure 1.

1. HSE Supplier evaluation *(pre award)*

- Defines scope of services offered by supplier prior to engagement
- Evaluates capacity to meet HSE requirements applicable to scope to ensure fair comparsion between suppliers when awarding work.

Contract Award

2. HSE Premobilisation *(post award)*

- Verify Contractor has HSE processes in place prior to mobilisation e.g. for mode 2 this includes HSE Plan, Bridging documents, Risk assessments

3. Mobilisation

- Verify key requirements are met such as inductions, registers of plant and HSE equipment, light vehicles

4. Post Mobilisation HSE Assurance

- Ongoing monthly reporting
- Participation in ongoing HSE Assurance checks

Figure 1 HSE Vendor/Contractor assurance process

Arrow contractors are classified into three categories to clearly assign responsibility between Arrow and the contractor for HSE management:

Mode 1

The contractor provides people, processes and tools to execute the work under Arrow's HSE MS, supervision and instruction. A typical Mode 1 contractor will be engaged by Arrow to work on an established Arrow site under the supervision and instruction of Arrow staff.

The contractor is to maintain processes to ensure their personnel are qualified and fit for work, and the instructions, tools, materials and equipment they provide are properly maintained and suitable for the scope of work being completed under the contract.

Mode 1 contractors are obligated to report HSE performance data; HSE performance is included in Arrow's HSE performance statistics.

Mode 2

The contractor completes the work **under their own HSE MS**, providing necessary instruction and supervision and verifying the proper functioning of its HSE MS. A typical Mode 2 contractor will be engaged to complete a well-defined project or activity for Arrow. A Mode 2 contractor will have responsibility over the worksite, which is controlled by the contractor under the contractor's HSE system to a predetermined point of handover to Arrow.

The contractor is required to demonstrate their HSE system meets or exceeds the requirements of Arrow's HSE Standards and adopt the contractor applicable procedures (where relevant to scope) in addition to meeting any applicable HSE contractual terms and conditions that have been agreed. They are also required to produce a bridging document which defines how their HSE MS interfaces with Arrow's to allow cooperation and coordination on HSE controls. Arrow has the right to verify the overall effectiveness of the contractor HSE MS controls, including interface with subcontractors, and assuring that both the requirements detailed in Arrow's HSE Standards and contractor applicable procedures are met.

Mode 2 contractors are obligated to report HSE performance data and their HSE performance is included in Arrow's HSE performance statistics.

Mode 3

Work is conducted at the contractor's site and HSE risks are managed under the Contractor's HSE MS. Mode 3 contractors operate within their own HSE MS - that has no interface with Arrow's HSE MS. A typical example of a Mode 3 contractor is an offsite supplier of goods.

Mode 3 contractors are not obligated to report HSE performance data. HSE performance of Mode 3 is not included in Arrow HSE performance statistics.

HSE Leadership and Commitment

Intent

To ensure that all staff and contractors practice visible safety leadership and receive effective ongoing behaviour based safety training.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Arrow and contractors shall have an ongoing behavioural safety program that targets safety leadership and safety culture.

   Arrow uses SAFER:

S Safety Leadership

Commitment to: leadership site visits, leadership participation in safety meetings, training, audits and incident investigation

A Assess the risks

Appropriate use of risk management tools to identify and manage hazards, including the Permit to Work (PTW) system to control risk from non-routine work.

F Follow the rules

Commitment to following and enforcing the 12 lifesaving rules, vehicle and driver safety requirement and land access rules. Use the consequence management process where required.

E Engage in safety conversations

Engagement that reinforces positive behaviour and corrects negative behaviours and/or situation. Understand the tools to aid engagement and capture learnings.

R Respect

Demonstrate that respect for people is built into the behavioural safety program.

2. Contractors must have a written statement signed by most senior leader within jurisdiction which sets out HSE commitments and expectations.
3. Contractors must be able to demonstrate clear organisational responsibility for HSE within their organisation.
4. All leaders are required to demonstrate visible HSE leadership via measurable actions:
   a. Be strong and visible advocates for HSE.
   b. Provide sufficient resources, systems and training to effectively manage HSE risks.
   c. Plan and make worksite visits to engage and communicate with staff and contractors on safety expectations – target zero and what is expected to make this a reality.
   d. Lead by example by intervening during day to day activities where it is felt that HSE requirements are not being met, including challenging business decisions and reporting HSE issues. Encourage staff and contractors to the same.
   e. Actively provide constructive feedback to staff and contractors on HSE behaviours and performance.
   f. Hold individuals accountable for their HSE behaviours and performance.
   g. Apply consistent consequence management to those who break Arrow Energy's Life Saving Rules.
   h. Provide consultation and seek feedback on HSE matters and performance.
5. HSE leadership and performance is to be assessed in the appraisal of all staff.
6. Arrow and contractors are to provide and maintain systems to facilitate communication and consultation with personnel on HSE issues.
7. Arrow and contractors are to ensure all personnel understand that they have the right and the responsibility to intervene or if necessary stop work in situations that are unsafe.

HSE Hazard Management

Intent

To ensure HSE hazards are identified and associated risks assessed and managed

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. All Arrow activities, operations and projects must have their HSE hazards and the associated risks assessed. This process includes: the identification of HSE hazards; assessment of consequences and evaluation of likelihood to determine risk ranking in line with Arrow's Risk Assessment Matrix (RAM). Actions identified to address risks are to be tracked through to implementation.
2. HSE risks and opportunities are to be assessed, prioritised and managed as appropriate to the nature and scale of HSE impacts to operations and activities. Low likelihood, high consequence events are to be specifically identified and assessed. The hierarchy of control is to be used in the development of risk mitigation activities.
3. Mode 2 contractors are required to complete project/ scope specific risk assessments and maintain risk registers. The output shall be the responsibility of the contractor and made readily available at site and shall be used to determine appropriate controls including supervision.
4. Mode 2 contractors shall record actions and recommendations identified during the risk assessment. Actions shall be tracked by Contractor.
5. HSE risks are be recorded and maintained in a HSE risk register. The risks are reviewed and updated at least annually, and following a significant incident, learnings and changes, or more often if the nature of the risk requires.
6. Arrow has a Job Safety and Environment Assessment (JSEA) process which supports work site HSE hazard identification, assessment and control. Contractors are required to have an equivalent process. This HSE JSEA process employs a specialised Risk Assessment matrix that is aligned to the corporate RAM.
7. The JSEA process shall be used in the development of written work documentation and for permitted activities.
8. After risk mitigation activities, the residual risk shall be deemed tolerable provided that it has been determined that this risk is as low as reasonably practicable (ALARP).
9. The hazard assessment and management process shall involve people with relevant knowledge and experience including: employees, contractors and other stakeholders as appropriate.
10. Personnel associated with use of HSE risk tools are to be trained and competent.

HSE Compliance

Intent

To ensure relevant legal and regulatory HSE requirements and voluntary commitments are identified, documented, understood and complied with for activities under Arrow's control.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Arrow and Mode 2 contractors must identify all relevant HSE legal and regulatory requirements, evaluate for compliance and maintain in a register or suitable alternative system.
2. The compliance register or system must:
   - **a.** Include material HSE legislative and regulatory requirements and obligations (including licences, permits and approval conditions).
   - **b.** Define accountability for each requirement.
   - **c.** Include or provide reference to records that show periodic evaluation of compliance with identified requirements.
   - **d.** Be periodically reviewed for relevance and currency as well as renewal/expiry dates and all changes are communicated to all relevant personnel.
   - **e.** Have processes in place for the communication of changes to relevant stakeholders.
3. Arrow and Mode 2 contractors must ensure systems are in place so that HSE records are established and maintained, accurate, legible and identifiable.
4. Managers must ensure that applicable HSE legal and other requirements are communicated to, and understood by appropriate and affected personnel.
5. The line management for each operation or business must be made aware of all potential non-compliances within Arrow or contractors acting on our behalf.
6. Contractor shall, as a minimum, comply with all Applicable Laws, including international jurisdictions where relevant.
7. Mode 2 contractors shall report immediately if associated with Arrow activities:
   - **a.** Any enforcement action taken against them.
   - **b.** Any complaint filed under Work Health and Safety Legislation against Contractor while performing the Work.
   - **c.** Any regulatory notice given by the Contractor to the regulatory authority.

HSE Planning

Intent

To ensure that HSE aspects of Arrow's activities are planned.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. HSE considerations and targets shall form a component of the business planning process.
2. Arrow will prepare and implement a company-wide HSE Plan that addresses key HSE improvement areas and overall HSE Strategy.
3. Arrow is required to maintain Safety Compliance Mapping and Environmental Management Plans that cover key activities.
4. HSE Mapping shall:
   a. Identify Health and Safety obligations from applicable legislation.
   b. Map regulatory safety requirements to the controls within the Arrow HSE management system (HSE MS) i.e. demonstrate compliance with identified HSE requirements.
   c. Be subject to regular periodic review with the goal of maintaining both the compliance requirements and ensuring that the mapped controls remain relevant.
   d. Assist HSE statutory position holders, supervisors and staff understand and meet their HSE obligations supported where appropriate by training and other documentation focused on managing HSE requirements of their roles.
   e. Identify environmental impacts, risks and regulatory requirements.
   f. Detail the controls including relevant systems and HSE MS procedures to minimise environmental impacts.
5. Arrow and Contractors are required to communicate HSE requirements so that they can be understood and followed by personnel.
6. Deviation from HSE requirements set out in HSE MS standards and procedures shall be documented and approved by the relevant HSE technical authority and line management.
7. Field teams shall conduct toolbox talks which include discussion of site specific HSE matters, review previous day's activities and outline planned activities.

HSE Competence

Intent

To ensure the HSE competence of staff and contractors. Arrow requires that all personnel are competent to conduct their work.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Contractors are required to, as a minimum, align with Safer Together common industry competency specification.
2. Contractors in addition to meeting the safer together requirements are required to have a systematic and documented process which identifies required technical and HSE competencies applicable to the scope of services.
3. Contractors are required to track employee competency records and expiry dates applicable for the size and scope of services offered by the organisation.
4. Provide information, instruction, training and supervision so that people are competent to carry out their work safely.
5. Arrow requires a documented system to manage HSE competency of staff that:
    a. Details HSE competences for HSE critical positions based on risk assessment.
    b. Applies formal and documented process of competency assurance to staff in safety critical positions, leadership and HSE professional positions.
    c. Retains all records of assessment including dates, documented evidence and assessor details.
    d. Manages competency gaps through an agreed and documented plan.
6. When there are changes in the business or organisation that involve HSE critical activities, identify the positions affected and update the competency requirements.
7. Induction processes shall be in place for new employees and contractors to cover off Arrow HSE MS requirements, HSE risks, HSE regulatory requirements and site specific inductions.

Contractor HSE Management

Intent

To ensure the HSE risks associated with contractor activities are effectively managed.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Arrow to Identify and assess the level of HSE risks associated with the proposed contracted activities.
2. Where required under the Category Management and Contracting Process Arrow must appoint a Contract Owner for each contract, and the Contract Owner must appoint a Contract Holder.
3. Determine contract mode, specifically:

   Mode 1 – The contractor provides people, processes and tools to execute the work under Arrow's HSE Management System, supervision and instruction. Arrow controls the worksite.

   Mode 2 – The contractor completes the work under its own HSE MS, providing necessary instruction and supervision and verifying the proper functioning of its HSE MS. The worksite is controlled by the contractor for the duration of the work.

   Mode 3 – Work is conducted at the contractor's site and HSE risks are managed under the Contractor's HSE MS.

   Multi-modal – any combination of the above.

4. Arrow Contracts and agreements shall contain relevant Arrow Energy HSE obligations and requirements, through the inclusion of the appropriate HSE Schedule. These HSE obligations and requirements are located in the HSE Contract Schedules specific to the mode of the contract.
5. Arrow Contract Holder shall determine HSE risk by assessing the activities in the contract work scope and determine the need for HSE key performance indicators.
6. Ensure that a HSE evaluation and pre-mobilisation assurance process is conducted for mode 1 & 2 contractors with significant HSE risks.
7. Ensure that for all Mode 2 contracts a bridging document is developed and implemented.
8. Monitor and regularly assess the HSE performance of the contractor to ensure compliance with relevant Arrow HSE Standards, regulatory requirements, agreed HSE performance requirements and HSE Schedule requirements. Actions associated with HSE performance shall be tracked through to close out.
9. Ensure that contractor has an appropriate process for managing the HSE performance of subcontractors.
10. Subcontractors must meet the same HSE requirements as their principal contractor where applicable to their scope of work.
11. Arrow shall communicate the requirements of this standard and associated procedures to personnel involved in Contractor management activities.
12. Supervisors of contractors shall have relevant knowledge of Arrow Energy HSE requirements and legislation.

HSE Performance Management

Intent

To ensure HSE performance data is appropriate and meets Arrow and regulatory requirements.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. A process shall be in place to ensure HSE performance is regularly monitored, measured, recorded and analysed with final results provided to internal and external stakeholders as required by legislation, and to facilitate improvement.
2. HSE performance shall be reported to personnel who have the responsibility to take action on the basis of the information.
3. Periodic review of aggregated Arrow HSE performance data shall be undertaken to facilitate development of HSE initiatives to drive improvement.
4. Contractors must report HSE performance and incident data, exposure hours and other information as specified by Arrow Energy.
5. Ensure HSE performance is reviewed with respect to the following:
   a. Key Performance Indicators, lead and lag indicators
   b. achievement of the HSE Plan and objectives
   c. audits, reviews, self-assessments
   d. compliance with legislation
   e. corrective actions closeout.

HSE Assurance

Intent

To ensure that the HSE assurance arrangement effectively test that the HSE Management System requirements are implemented in the business are being adhered to by contractors.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Establish and maintain a HSE assurance schedule.
    a. Establish and maintain the methodology for HSE Audits.
    b. Coordinate the execution of HSE assurance.
    c. Assurance checklists for use by frontline personnel.
2. Verify that leaders of audits are competent.
3. Contractors shall be audited against the requirements of the applicable HSE Schedule.
4. Arrow and Contractors are required to maintain an action tracking mechanism to ensure actions from audit findings are tracked through to closure.
5. Arrow will prepare quarterly HSE assurance reports and annual HSE Assurance reports for senior management.

HSE Systems Review

Intent

To ensure that the Arrow Energy HSE Management System is reviewed periodically in order to be effective.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Arrow to review the HSE MS when significant changes warrant a review. The review should take into account:
   - **a.** providing safe systems of work
   - **b.** compliance with laws and regulations (including any non-compliances)
   - **c.** business expectations and requirements, and stakeholder feedback
   - **d.** the changing circumstances and commitment to continuous improvement
   - **e.** contract and contractor management
   - **f.** HSE risks
   - **g.** the outcome of incident investigations
   - **h.** learnings from emergencies
   - **i.** HSE Management Systems audits, reviews and self-assessments
   - **j.** legislative changes
   - **k.** resources and business continuity.
2. Define and plan any improvements required for the HSE MS.
3. Communicate any revisions of the HSE MS to the appropriate personnel or contractors.

Management of Change

Intent

This Standard applies to changes that may have HSE risk or consequences.

All line managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Contractors are to put in place a documented procedure that meets or exceeds the requirements of standard.
2. Arrow Businesses to develop and manage Management of change procedures for their part of the organisation that meets the requirements of this standard.
3. Management of change process must:
   - **a.** Identify the need for Change.
   - **b.** Specify the competence requirements of personnel involved in management of change and escalation process based upon level of risk.
   - **c.** Screen the change proposal, develop the detailed solution, assess HSE risk, identify cross departmental impacts, and identify any regulatory or external affairs consequences.
   - **d.** Review and approve/decline the change proposal, including the design and planning, any scope or design changes arising during the work, and any cross departmental impacts.
   - **e.** Implement the change (including informing those affected by the change of the impact of the change, training, secondary changes, readiness review, handover and acceptance for use).
   - **f.** Close-Out of the change. Look-back and review, including learning capture.
   - **g.** Manage expiry dates and approval of extensions for temporary changes.
   - **h.** Manage emergency changes, including authorisation to postpone the management of change process until control is regained.
   - **i.** Track the development and progress of change proposals from initiation to closeout.

Permit to Work

Intent

To ensure that there is a suitable risk tool to effectively manage site based risks.

All line managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. This Standard applies to all work completed by Arrow and by contractors on Arrow work sites. Arrow controlled locations must follow Arrow's Permit to Work (PTW) system. At sites not controlled by Arrow (which may include ring fenced activities within Arrow sites) activities shall be controlled by a PTW system that has been approved by Arrow. Where an interconnection is made to Arrow Operating Plant by a contractor, the activity shall be completed under the Arrow PTW system unless specifically authorised otherwise.
2. Arrow requires a PTW system to meet the following requirements:
   - **a.** Require a risk assessment.
   - **b.** Specify the operational preparations required before a Permit can be issued.
   - **c.** Document the competencies required to conduct types of hazardous work or hold specific signatories under the PTW system.
   - **d.** Specify the roles and responsibilities of authorised signatories or equivalents.
   - **e.** Maintain a register of Permit Authorities and Permit Holders, and their competencies.
   - **f.** Maintain records of permits issued for a period of seven years.
   - **g.** Specify how permits are issued and closed, including for both 'complete' and 'suspended' situations, how shift handovers are managed, and the period of validity of permits.
   - **h.** Document the authorisations required for deviation in the event of an emergency.
3. It is mandatory that PTW is employed to control work including the following activities:
   - **a.** Hot Work at MAH Facilities
   - **b.** Confined Space Entry
   - **c.** Electrical Work
   - **d.** Excavation
   - **e.** Working at Heights
   - **f.** Radiation Work
   - **g.** Critical lifts.
4. Risk Assessment shall be used to evaluate the need for PTW for the following activities:
   - **h.** Hot Work outside of MAH facilities
   - **i.** Cold Work
   - **j.** Pressure Work
   - **k.** Working with Chemicals
   - **l.** Working over Water
   - **m.** Non-critical lifts.
5. A permit may not be required where the work does not include activities with mandatory permit applicability.

Journey Management and Driver Safety

Intent

To ensure that the HSE risks of driving vehicles used for transportation of people and goods for company business are managed.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Processes must be implemented to ensure compliance to relevant legislation and company requirements associated with road and driver safety. This includes:
   - **a.** All drivers have a licence valid for the vehicle and, if required, the cargo.
   - **b.** All light vehicle drivers will complete driver training.
2. Arrow and applicable contractors must comply with the following Safer Together Standards:
   - **a.** Safer Together - In-Vehicle Monitoring System Specification.
   - **b.** Safer Together - Heavy Vehicle Specification (Sets the minimum requirements for heavy vehicle: risk management, driver training and competency. It includes specification requirements for trucks, trailers, tankers and buses).
   - **c.** Safer Together - Light Vehicle Specification.
3. Drivers must be fit to work in compliance with Arrow Fitness to Work medical assessment arrangements and capable of operating the vehicle:
   - **a.** be alert and maintain attention during the trip.
   - **b.** not operate a vehicle while under the influence of alcohol, drugs or medication that could impair driving ability.
4. Ensure there is a system for maintenance of vehicles.
5. A journey management system must be established and used by Arrow personnel and applicable contractors.
6. The maximum permitted speed on unsealed roads outside Arrow operating areas is the lower of 80kmph or the signed / gazetted speed limit.

Definitions

Applicable Contractor

An applicable contractor is one that is contracted to perform work for Arrow Energy valued at in excess of $250,000 per annum, or exceeding 30 days duration in any one year, and requires the use of light vehicles, or any contractor who is engaged to perform work which involves the use of heavy vehicles regardless of contract value or duration.

Safer Together

Safer Together is a Queensland Coal Seam Gas (CSG) Industry Safety Forum, of which Arrow is an active member. Safer Together is a not for profit organisation which has brought together operators and contract partner companies active in the CSG industry who are committed to improving the industry's safety performance. The forum aims to drive consistency and continuous improvement of industry standards and develop practical, effective solutions that have industry wide application.

Safer Together Standards are available for contractors on the Safer together website.

Aviation Safety

Intent

To manage the HSE risks associated with aviation activities engaged by Arrow.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

This Standard does not apply to use of community emergency resources.

Requirements

1. All commercially engaged aviation activities shall be conducted in accordance with:
   - **a.** the requirements of the local civil aviation safety authority
   - **b.** International Association of Oil & Gas Producers (IOGP) guidelines.
2. Arrow will not engage any airline for Regular Passenger Transport air services that is banned from operating in Australia, or is included on the European Union list of banned airlines, without specific approval from VP HSE and the Chief Executive Officer.
3. Drones are to be operated at all times in accordance with Civil Aviation Safety Authority requirements and Arrow requirements.
4. Drones operated directly by Arrow will be in the sub two kilogram category.

Confined Space Entry

Intent

To ensure that the HSE risks associated with confined spaces and confined space entry are appropriately managed to as low as reasonably practical.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard applicable to their work scope.

Requirements

1. Arrow and contractors shall ensure processes are implemented and maintained to ensure compliance to relevant legislation, Confined Spaces Code of Practice 2011, and company requirements associated with confined space work.
2. Maintain processes to identify and manage (access/signage/register) confined spaces.
3. Ensure an approved Permit to Work system is used for all confined space entry.
4. Conduct appropriate risk assessments to manage confined space entry, controls implemented (in line with the hierarchy of controls) and the risks managed to as low as reasonably practicable.
5. Personnel who perform confined space work are to be trained and competent to carry out the work.
6. Ensure appropriate emergency response capability is in place prior to conducting the confined space work.

Definitions

Arrow has adopted the definition from the Queensland Work Health and Safety Regulation 2011.

A **Confined space** is defined as an enclosed or partially enclosed space that:

- is not designed or intended primarily to be occupied by a person; and
- is, or is designed or intended to be, at normal atmospheric pressure while any person is in the space; and
- is or likely to be a risk to health and safety from :
  - an atmosphere that does not have a safe oxygen level, or
  - contaminants, including airborne gases, vapours and dusts, that may cause injury from fire or explosion, or
  - harmful concentrations of any airborne contaminants, or
  - engulfment.

Confined space entry is defined as when a person's head or upper body is within the boundary of the confined space.

Electrical Safety

Intent

To ensure that the HSE risks associated with personnel working with, or near, electricity are managed to as low as reasonably practical.

All Line Managers are responsible for implementation and compliance with this Standard.

In addition to this Standard, the Arrow Engineering Standard, titled Electrical Safety Rules which must be adhered to.

Contractors must meet or exceed the requirements of this Standard applicable to their work scope.

Requirements

1. Arrow and contractors shall ensure processes are implemented and maintained to ensure compliance to relevant legislation, company requirements and electrical codes of practice including:
   a. Electrical safety code of practice 2010 – Working near overhead and underground electric lines
   b. Electrical safety code of practice 2013 – Managing electrical risks in the workplace
   c. Electrical safety code of practice 2010 – Works.
2. Prior to undertaking electrical work, ensure the appropriate risk assessments are conducted, controls implemented (in line with the hierarchy of controls) and risks managed to as low as reasonable practicable.
3. Ensure only Authorised Persons are to undertake electrical work and perform high voltage switching operations.
4. An approved Permit to Work system must be used when carrying out electrical work.
5. Where practicable, Residual Current Devices (safety switches), either fixed or portable, are to be used where electrical equipment is plugged in to a source.
6. Inspection and test programs are to be in place to ensure all electrical apparatus to be used is within current test date.
7. Ensure the design, installation and bringing into service of permanent or temporary electrical systems and facilities is reviewed and approved by an Authorised Person.
8. Appropriate emergency response capability is in place prior to conducting electrical work.
9. Controls are be implemented for work or equipment near to underground or overhead electrical hazards (in-line with the hierarchy of controls).

Definitions

Electrical work is the manufacturing, constructing, installing, testing, maintaining, repairing, altering, removing, or replacing of electrical equipment.

Electrical equipment is any apparatus, appliance, cable, conductor, fitting, insulator, material, meter or wire:

- Used for controlling, generating, supplying, transforming or transmitting electricity at a voltage greater than extra low voltage; or
- Operated by electricity at a voltage greater than extra low voltage; or
- Operated by electricity at an extra low voltage, if the equipment forms part of an electrical installation located in a hazardous area; or
- That is, or that forms part of, a cathodic protection system.

Extra low voltage means voltage of 50V or less AC RMS, or 120V or less ripple-free DC.

Authorised Person is a person assessed by Permit Authority (Electrical) and Authorised by Arrow Energy, who is trained on performing specified duties on electrical equipment, e.g. opening or closing motor circuits.

Permit Authority (Electrical) is a person assessed by Senior Electrical Authority and Authorised by Arrow Energy, to initiate work on high and low voltage electrical equipment. The authorisation includes the authority to approve initiation and cancellation of all electrical safety documents and check the necessary safety procedures associated with the issue/cancellation of such documents.

Senior Electrical Authority is an Arrow Energy Staff Member that is authorised by Arrow Energy as a Technical Authority (TA), to supervise implementation of Arrow Energy's Electrical Safety Rules and oversee the assessment of electrical competency, training and experience of persons operating and working on electrical equipment.

Excavation

Intent

To ensure the HSE risks associated with excavation activities are managed to as low as reasonably practicable.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard applicable to their work scope

This Standard does not apply to well drilling activities.

Requirements

1. Arrow and contractors shall ensure processes are implemented and maintained to ensure compliance to relevant legislation, Excavation Work Code of Practice 2013, and company requirements associated with excavation work.
2. Ensure an approved Permit to Work system is used for excavation activities.
3. All efforts shall be made to identify buried services in the area where excavation work is to be carried out.
4. Approach distances and method of excavation must be agreed with the operators of buried services prior to excavation.
5. Open excavations shall be barricaded and signed to protect livestock and prevent unauthorised access.
6. Prior to undertaking excavation activities, ensure the appropriate risk assessments are conducted, controls implemented (in line with the hierarchy of controls) and risks managed to as low as reasonably practicable.
7. Within Arrow assets prior to any excavation within 1m of underground services, the services shall be exposed by hand excavation or other suitable soft dig method.

Definitions

Excavation for Arrow purposes is defined as any penetration into a ground surface greater than 300mm. It may involve hand excavation, back filling operations, mechanical excavations, driving earth stakes or mast anchors, grading of sites or trenching. It does not include minor surface work such as placement of survey pegs, driving of star pickets (less than 300mm into the grade).

Gas Detection and Hot Work

Intent

To ensure that the HSE risks associated with hot work and loss of containment are managed to as low as responsibly practicable.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard applicable to their work scope.

Requirements

1. Arrow and contractors shall ensure processes are implemented and maintained to ensure compliance to Code of Practice for Leak management, Detection and Reporting for Petroleum Operating Plant and company requirements associated with gas detection, leak reporting and hot work.
2. During routine work to any active well site, gathering system and processing facility personnel shall carry and calibrated personal gas detectors.
3. All portable gas detectors require personnel competent and authorised to inspect the detector, use it to conduct measurements, and interpret the results.
4. Competent personnel shall investigate and classify any audible/visible leaks and take appropriate actions to manage those leaks, provided that it is safe to do so. **No person shall put themselves or others at risk when investigating and classifying leaks.**
5. Visitors at processing facilities must be accompanied by personnel competent to carry and monitor personal gas detectors. The visitors must not leave the personnel assigned to accompany them.
6. Personal Gas detector alarm actions apply to both Arrow personnel and contractors.
7. Prior to undertaking hot work, conduct appropriate risk assessments, implement controls (in line with the hierarchy of controls) and manage the risks to as low as reasonably practicable.
8. A Permit to Work system must be used for all Hot Work activities within Major Accident Hazard facilities.

Definitions

Processing facilities for the purposes of this procedure are the demarcated exclusion zones/restricted areas that enclose the hazardous areas within the facility boundary and exclude offices and control rooms.

Hot work is any work that may introduce a source of ignition such as: operation of non-intrinsically safe electrical/battery powered equipment, welding, soldering, cutting, brazing, grinding and drilling.

Hot work areas are designated location for hot work activities (welding, soldering, cutting, brazing, grinding and drilling) can be undertaken without a hot work permit. These areas must be outside hazardous area zones, risk assessed, demarcated on the site map and approved by the line manager responsible for the site prior to undertaking work.

Lifting, Loading and Unloading

Intent

To ensure the HSE risks associated with lifting (including hoisting), loading and unloading activities are managed to as low as reasonably practicable.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard applicable to their work scope.

Requirements

1. Arrow and contractors shall ensure processes are implemented and maintained to ensure compliance to relevant legislation, Mobile Crane Code of Practice 2006, and company requirements associated with lifting, loading and unloading activities.
2. Prior to undertaking lifting, loading and unloading activities, ensure appropriate risk assessments are conducted, implement controls implemented (in line with the hierarchy of controls) and manage the risks managed to as low as reasonably practicable.
3. Conduct assessments and develop lift plans for critical lifting as defined in this standard.
4. Ensure an approved Permit to Work system is used for critical lifts.
5. Personnel who are associated with the lifting, loading and unloading work are trained and competent to carry out the work.
6. For loading and unloading activities, implement appropriate exclusion and safe zones are established under the control of the loading/unloading operator.
7. Prior to undertaking lifting, loading and unloading activity, confirm that all equipment is fit for purpose, and that safety devices are installed and operational.
8. Implement inspection, maintenance and certification regimes are in place for equipment used in lifting, loading and unloading activities, and that appropriate records are kept.

Definitions

Lifting for the purposes of this procedure includes the raising or lowering of a load by means of suspension via rigging using lifting devices including cranes. Lifting is used in this document to describe all types of lifting and hoisting.

Loading and unloading for the purposes of this procedure describes the use of Lifting and mobile equipment to remove or place items onto a vehicle.

Critical lifts is a lift where any of the following apply:

- Lifts which exceeds 75% of the manufacturer's rated capacity for the crane or hoisting equipment.
- Lifts which involve two cranes, hoists or a combination of lifting equipment.
- Lifts which are conducted in close proximity to or over Operating Plant or equipment or which have the potential to impact overhead services.
- Lifts where the object being lifted is awkward i.e. an asymmetrical shape, an undetermined centre of gravity and/or close installation tolerances.
- Lifts which involves the lifting of personnel.
- Lifts which are conducted within a confined space as defined in the Confined Space Entry Procedure.
- Lifts where the load can cause significant impact if not managed correctly.

All other lifts are considered to be non-critical lifts.

Hazardous Manual Tasks

Intent

To ensure risks associated with manual tasks in the workplace are managed to as low as reasonably practicable to prevent injuries and musculoskeletal disorders.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard applicable to their work scope.

Requirements

1. Arrow and contractors shall ensure processes are implemented and maintained to comply with relevant legislation, Hazardous Manual Tasks Codes of Practice, and company requirements.
2. Prior to undertaking any work, ensure appropriate risk assessments are conducted, controls implemented (in line with the hierarchy of controls) and risks managed to as low as reasonably practicable. Hazards which shall be considered include:
    a. postures, movements, forces and vibration relating to the hazardous manual task
    b. duration and frequency of the hazardous manual task
    c. workplace environmental conditions affecting the task or worker
    d. design of the work area
    e. layout of the workplace
    f. system of work used
    g. the nature, size, weight or number of persons, animals or things involved in carrying out the hazardous manual task.
3. Ensure workers who perform manual tasks are consulted when conducting manual task risk assessment.
4. Design plant and equipment to reduce the requirement to perform hazardous manual tasks.
5. Provide hazardous manual task training to workers with significant potential exposure.

Definitions

Hazardous manual task, means a task that requires a person to lift, lower, push, pull, carry or otherwise move, hold or restrain any person, animal or thing involving one or more of the following:

- repetitive or sustained force
- high or sudden force
- repetitive movement
- sustained or awkward posture
- exposure to vibration.

Musculoskeletal disorder, means an injury to, or a disease of, the musculoskeletal system, whether occurring suddenly or over time.

Safe Isolation

Intent

To ensure the HSE risks associated with work on, and around, live equipment and energy sources are managed to as low as reasonably practical.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors are to put in place a documented procedure that meets the requirements this HSE standard.

Requirements

1. Arrow and contractors shall ensure processes are implemented and maintained to comply with relevant legislation, company requirements and codes of practice including:
   - **a.** Electrical Safety Code of Practice 2013 – Managing electrical risks in the workplace.
   - **b.** Managing Risks of Plant in the Workplace Code of Practice 2013.
2. The highest level of isolation that is reasonably practical shall be applied.
3. Ensure processes are in place to identify when and what type of isolation is required.
4. Positive isolation shall be provided when any of the following apply:
   - **a.** For confined spaces where entry by personnel is required.
   - **b.** Equipment or piping is to be opened or removed whilst the remainder of the piping, unit or adjacent plant is still in operation.
   - **c.** Isolation at pressure testing battery limits.
5. Proven double valve isolation to block and bleed (DB&B) process or utility fluids, before breaking open a system, shall be provided for, fluids in any pressure class/rating classified as:
   - **a.** very-toxic or lethal
   - **b.** ASME pressure Class 600 and above
   - **c.** all permanent utility connections to process systems.
6. Proven single valve isolation to block and bleed (SB&B) process or utility fluids, before breaking open a system, shall be limited to cases satisfying all of the following:
   - **a.** not classified as very toxic or lethal
   - **b.** ASME pressure Class 300 and below.
7. Where required levels of isolation cannot be achieved, or the isolation cannot be proven, the risk assessment must be reviewed by the line manager and clearly document why a shutdown is not justified prior to work proceeding.
8. Isolation plans and execution of isolation and reinstatement activities are to be risk assessed and include:
   - **a.** Arrangements for safe venting and draining of hazardous fluids.
   - **b.** Requirements on how to prove and monitor isolations.
   - **c.** Mitigation and recovery measures if something fails, changes or something unexpected occurs.
   - **d.** In-field confirmation that the planned isolation and reinstatement sequence is feasible (‘walk the line’).
9. Ensure that personnel who are associated with isolation activities are trained and competent to carry out the work.

Working at Heights

Intent

To ensure the HSE risks associated with working at heights activities are managed to as low as reasonably practicable.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors are to put in place a documented procedure that meets the requirements of this Standard.

This Standard does not apply to fixed platforms, stairways or walkways with handrails.

Requirements

1. Arrow and contractors shall ensure processes are implemented and maintained to comply with relevant legislation, company requirements and the following codes of practice:
   a. Managing the Risk of Falls at Workplaces Code of Practice 2018
   b. Scaffolding Code of Practice 2009
2. Processes are in place to identify when work is considered ‘working at height’.
3. Appropriate risk assessments are conducted to manage the risk of a fall when working at height, controls implemented (in line with the hierarchy of controls), and risks managed to as low as reasonably practicable.
4. Personnel who work at heights and those that inspect and maintain fall protection equipment, scaffolding and elevating work platforms shall be trained and competent to carry out their work.
5. Ensure an approved Permit to Work system is used where work includes working at height.
6. Scaffolding is erected, used, altered and dismantled under an approved scaffold plan. Access to scaffold is controlled by tag system to indicate it is fit for use.
7. Appropriate emergency response plan and capability is in place prior to working at heights.
8. Inspection, maintenance and certification regimes are in place for equipment used in working at heights activities. These are to include, but not be limited to, fall protection equipment, temporary work platforms, elevating work platforms, ladders and scaffolding. Appropriate records must also be kept.

Definitions

Working at height applies where any of the following are met:

- There is a risk of falling from a height of 1.8 metres or more.
- There is a risk of falling from any height where the landing poses a serious hazard to the worker.
- To gain access within 2 metres of an open edge where there is a potential fall from a height of 1.8 metres or more or where the fall poses a serious hazard irrespective of height.
- Erecting, Modifying and dismantling scaffolding or working from an untagged scaffold.

Mobile and Automated Equipment

Intent

To manage the HSE risks associated with mobile and automated equipment are managed to as low as reasonably practicable.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Ensure that processes are implemented to ensure compliance to relevant legislation and company requirements associated with mobile and automated equipment.
2. Contractors are required to have a documented process for plant and equipment, including registers for plant with risk assessment, and records of statutory inspection.
3. All mobile and automated equipment must have a Plant Risk Assessment that contains as a minimum:
   - **a.** Plant description
   - **b.** Designed and intended uses
   - **c.** Hazards in the use of the equipment
   - **d.** Controls to minimise risks to ALARP
   - **e.** Equipment operator qualifications and competency requirements.

   Supervisor is to check the above documentation, approve and assure prior to allowing equipment to be mobilised onto a worksite.
4. Equipment controls shall be guarded to prevent unintentional activation, incorporate a lock off position, or two or more actions to activate.
5. Mobile plant and equipment shall be safely parked, fundamentally stable, keys removed and plant locked to prevent unauthorised use.
6. Automated equipment that can be started or operated remotely (i.e. out of the sight of the operator) needs to have appropriate signage, barricades and/or guarding in place to limit access to potentially hazardous areas.

Definitions

Plant includes any machinery, equipment, appliance, container, implement and tool, and includes any component or anything fitted or connected to any of those things. Plant includes items as diverse as lifts, cranes, computers, machinery, conveyors, forklifts, vehicles, power tools and amusement devices.

Plant that is designed to be primarily supported by hand (e.g. a screw driver, battery drill) and office equipment (e.g. computers, chairs, phones) is not covered by this standard.

Mobile Equipment is plant that is provided with some form of self-propulsion that is ordinarily under the direct control of an operator (Excluding light/heavy vehicles)

Automated Equipment is plant that is a mechanical device, which functions automatically without continuous input from an operator, or has the ability to be operated remotely or automatically energised without warning, and causes a hazard to personnel.

Chemical Management

Intent

To ensure the HSE risks associated with transportation, storage, handling, use and disposal of chemicals are managed to as low as reasonably practical.

All Line Managers are responsible for implementation and compliance with this Standard.

Requirements

1. Arrow and contractors shall ensure processes are implemented and maintained to ensure compliance to relevant legislation, company requirements and codes of practice including:
    a. Managing Risks of Hazardous Chemicals in the Workplace Code of Practice 2013
    b. Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice 2011.
2. Processes are implemented and maintained to ensure compliance with relevant legislation and company requirements associated with transportation, storage, handling and disposal of chemicals and dangerous goods.
3. Implement and maintain a system for the identification, approval, inventory management and use of chemicals and dangerous goods.
4. Ensure current Safety Data Sheets for all chemicals are available and accessible to personnel involved in chemical transport, storage, use, disposal or emergency response.
5. Conduct risk assessments to identify, assess and control chemical hazards to as low as reasonably practicable, and implement and maintain controls identified in the risk assessment.
6. Consider HSE risks in selecting chemicals.
7. Implement processes to respond to chemical and/or dangerous goods emergencies and spills.
8. Ensure personnel working with or exposed to chemicals in the workplace are informed on the hazards of exposure to chemicals in the workplace and are appropriately trained and competent.

Life Saving Rules

Intent

To ensure that Arrow's Life Saving Rules are applied to manage HSE risks and ensure consistent and fair application of consequence management for Life Saving Rule Breaches.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. All staff and contractors must follow the 12 Life Saving Rules:

1. Work with a valid permit when required
2. Conduct gas tests when required
3. Verify isolation before work begins and use the specified lifesaving equipment
4. Obtain authorisation before entering a confined space
5. Obtain authorisation before overriding or disabling safety critical equipment
6. Protect yourself against a fall when working at heights
7. Do not work under a suspended load
8. Do not smoke outside of designated areas
9. No alcohol or drugs while working or driving
10. While driving, do not use your phone an do not exceed speed limits
11. Wear your seat belt
12. Follow prescribed Journey Management Plan

2. Develop and implement a procedure that details Arrow's Life Saving Rules and the associated consequence management process.
3. The procedure must :
   a. Define Arrow's Life Saving Rules and associated HSE requirements.
   b. Define the consequence management assessment process for Life Saving Breaches including formal documentation requirements.
   c. Define accountability for reporting and management of Life Saving Rule Breaches including consequence management process.
   d. Define consequence management options for employee and contractor Life Saving Rule Breaches, including coaching and retraining, written warning and termination.
   e. Define process for communication of consequence management.
4. All Life Saving Rule breaches must be reported to the Supervisor of the work activity (and/or Arrow Energy Contact) as soon as possible.
5. All Life Saving Rule breaches must be logged in the Incident Management database.

Personal Protective Equipment

Intent

To ensure risks associated with workplace activities are managed to as low as reasonably practicable via the use of personal protective equipment (PPE).

All Line Managers are responsible for implementation and compliance with this Standard.

Requirements

1. Arrow and contractors shall ensure processes are implemented and maintained to comply with relevant legislation, codes of practice, Australian standards and company requirements.
2. Prior to undertaking any work, ensure appropriate risk assessments are conducted, controls implemented (in line with the hierarchy of controls) and risks managed to as low as reasonably practicable. The risk assessment must also be used to determine the need for additional specialised, task specific PPE.
3. The following hazards shall be considered in the worksite risk assessment:
    a. Compression
    b. Impact
    c. Penetration
    d. Heat
    e. Chemical
    f. Harmful dusts, fumes and vapours
    g. Light
    h. Biological hazards
    i. Electrical hazards
    j. Vibration
4. Ensure PPE is used as determined by risk assessment, operational or legislative requirements.
5. Provide instruction and training on PPE use, fitment and maintenance to personnel required to use the equipment.
6. Arrow and contractors shall ensure suitable and properly fitted PPE is considered the lowest level of control under the hierarchy of controls. PPE is the last line of defence and is not to be used in isolation to manage risks.

Security

Intent

To ensure that physical security risks are managed to as low as reasonably practicable by assessing security threats and providing controls to safeguard people, assets, information and reputation.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Arrow recognises that security risks cannot be eliminated and are to be managed, Arrow and contractors are to ensure appropriate security risk assessments are conducted, appropriate controls implemented and security risks managed to as low as reasonably practicable.
2. Arrow is to provide an integrated approach to security planning which addresses the major foreseeable security risks to the company:
   - **a.** terrorism
   - **b.** crime
   - **c.** civil disorder and protest action.
3. Arrow to maintain security intelligence liaison with other CSG Operating Companies and Government Agencies to monitor and report on the security environment in Australia and overseas as it affects Arrow.
4. Ensure security is implemented consistent with Arrow’s community engagement obligations.

Natural Events

Intent

To manage the HSE risks associated with natural events affecting Arrow workplaces or personnel, to as low as reasonably practicable.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Processes must be implemented to ensure compliance to relevant legislation associated with preparations for and response to natural events. Ensure processes are in place to assess risks to Arrow and personnel from natural events, and to implement appropriate mitigation strategies.
2. Ensure that weather (for example high heat and cold days), bushfire and associated natural events are monitored appropriately.
3. Credible natural events shall be considered during the design and operations stage to ensure adequate provision and maintenance for:
    a. foundation and earthworks design
    b. road and water crossings construction
    c. protection from flooding
    d. provision of fire breaks
    e. appropriate design for occupied buildings
    f. severe weather events.
4. Arrow to maintain liaison with the Queensland Fire and Emergency Services in relation to natural event risks in the Arrow area of operation.

Emergency Management

Intent

To ensure safe and effective emergency response to incidents that mitigates the consequences, prevents further harm and enables a safe efficient resumption of normal operations.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Establish and maintain a Crisis and Emergency Management Framework, including provision for Crisis and Emergency Management teams and control centres, including back-up arrangements.
2. Development, maintenance and testing of risk based Crisis and Emergency Management plans, procedures and checklists for corporate, regions, sites, facilities and operations to:
   a. Address reasonably foreseeable medical, security, safety and environmental scenarios.
   b. Provide for escalation of an emergency response to crisis response where appropriate.
3. Ensure medical emergency response is planned, resourced, implemented and documented to meet the response times of: First Aid to casualty in four minutes; medical emergency response (doctor, paramedic or nurse) to casualty within one hour; transport of casualty to hospital within four hours. For sites or activities where these response times cannot reasonably be achieved, such as vehicle drivers, workers in transit, lone workers or workers in isolated locations, appropriate risk mitigation measures shall be implemented to reduce the risk to the workers to as low as reasonably practicable.
4. Ensure availability of trained personnel to fulfil Crisis and Emergency Management roles including:
   a. Crisis Management and Emergency Management teams
   b. Crisis Support Teams Rostered Emergency Controllers
   c. Emergency Response Team members.
5. Test and drill plans, procedures and personnel at regular intervals, to include:
   a. notification, callout and communication processes and systems
   b. corporate, regional and site responses.
6. Identify training needs and conduct initial and refresher training in Emergency Management and Crisis Management roles.
7. Conduct after action reviews of tests/drills and incident responses to identify areas for improvement, and update plans and procedures accordingly.
8. Arrow is to maintain liaison with local Emergency Services to ensure Arrow plans and procedures take into account local capabilities and provide for a coordinated approach to emergency management across the Arrow area of operation.

Incident Management

Intent

To ensure that HSE incidents are effectively managed.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. A procedure for management of all incidents must be implemented, and must cover the remaining requirements of this standard, and include appropriate methodologies for:
   - **a.** recording and classification
   - **b.** investigation
   - **c.** analysis of the impacts and the potential risk of future incidents
   - **d.** communication to relevant stakeholders and regulators.
2. All incidents, including Near Misses, must be reported to the Supervisor of the work activity (and/ or Arrow Energy Contact) as soon as possible.
3. An initial classification of the incident must be made based on an assessment of the Actual Consequence Severity, and a realistic Potential Risk Rating using Arrow's Risk Assessment Matrix (RAM).
4. Arrow to log the incident in the Incident Management System and appoint an Incident Owner.
5. The appropriate Line Manager must be notified and any required Incident Notifications to Government Regulators must be made in the prescribed format and within timelines defined in relevant legislation.
6. All safety incidents shall be classified in accordance with the OSHA Recordkeeping Handbook and the Oil and Gas Processors Association (OGP). Work relatedness shall be determined by the OSHA Recordkeeping Handbook.
7. Investigation of the incident must be conducted as soon as practical after it occurred, and to the required investigation level. The result from the investigation must be documented and communicated to the relevant personnel.
8. All Significant and High Potential incidents must be summarised for their lessons learnt once the investigation is completed, and communicated both internally and externally via appropriate sharing methods.
9. Business-specific and Company-wide Incident Review Panels will be held as appropriate to share learnings, and identify organisational improvements.

Alcohol and Other Drugs

Intent

To ensure a safe and healthy workplace by the management of the use of alcohol and other drugs in the workplace, which can be a contributing factor in workplace injuries and incidents.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Meet Workplace Health and Safety legislative obligations with respect to Fitness to Work, and Australian / New Zealand Standards in regard to Alcohol and Other drugs testing processes and tester qualifications.
2. Adopt a zero tolerance approach to alcohol and other drugs in the workplace.
3. Provide an integrated approach to Alcohol and Other Drug Management that includes:
    a. Alcohol and Other Drug testing
    b. awareness, education and prevention
    c. access to Employee Assistance Program.
4. Arrow-controlled and contractor camps are to be dry (no alcohol) or adopt a managed approach to serving and consumption of alcohol which includes:
    a. limitation on the types of alcohol served to mid strength beverages
    b. availability of self-testing breathalysers.

Fitness to Work

Intent

To ensure a safe, healthy and productive workplace, through the management of risks to personnel associated with their own, or others, fitness to work.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Provide an integrated approach for fitness to work that includes:
   - **a.** medical fitness to work and injury management
   - **b.** management of workplace fatigue
   - **c.** management of workplace stress and mental health
   - **d.** management of working in heat
   - **e.** management of alcohol and other drugs in the workplace
   - **f.** ensure personnel are aware of fitness for work requirements
   - **g.** maintain records in regard to fitness to work.
2. Arrow and Contractors to comply with the Safer Together Management of Heat Stress guideline.
3. Arrow may stop work where personnel undertaking work are not fit to complete the task allocated, and where their safety or the safety of others is put at risk.
4. Arrow and contractors working at site shall conduct fitness to work medical assessments to Arrow specified requirements. The fitness for work medical assessment process will include pre-employment medicals and ongoing periodic assessments at a minimum of every three years.

Occupational Health and Hygiene

Intent

To ensure a safe and healthy workplace through the management of occupational health and hygiene risks associated with workplace activities.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Meet Workplace Health and Safety legislative obligations with respect to Occupational Health and Hygiene.
2. Identify work related health hazards, evaluate their risks to health and determine appropriate control (using the hierarchy of control), and recovery measures to reduce the risk to as low as reasonably practicable (ALARP).
3. Implement controls for work related health hazards to incorporate:
    a. compliance with applicable exposure standards
    b. provide personnel with awareness of the health hazards present at their worksites and the mitigation measures required to control exposure
    c. hygiene monitoring as required to determine exposure, appropriate controls and evaluation
    d. medical surveillance as required
    e. maintenance of appropriate records for hygiene monitoring and medical surveillance.
4. Provide an integrated approach to Occupational Health that includes the management of:
    a. medical services
    b. business travel
    c. occupational vaccination
    d. epidemic and pandemic disease
    e. health promotion and wellness programs.
5. Where camps are used for workplace accommodation, they shall provide facilities that assist with the management of health, safety and wellbeing including recreation amenities, communications, potable water and healthy food options.

Biodiversity

Intent

To ensure the protection of biodiversity (flora, fauna and natural habitats) in the areas in which Arrow operates.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Processes must be implemented to ensure compliance with legislation and regulatory requirements associated with biodiversity.
2. Prior to disturbing natural systems, ensure that biodiversity impacts are assessed. Assessments must be undertaken by suitably qualified and experienced persons.
3. Where identified as part of the risk assessment, a documented plan to avoid and minimise impacts to biodiversity shall be developed and implemented. This plan shall address, but not be limited to:
    a. biodiversity values including threatened species
    b. controls to avoid, minimise and mitigate biodiversity impacts, and to reinstate as relevant
    c. when a risk to fauna or fauna habitats exist, fauna spotter-catchers must be present for vegetation clearing or land disturbance works
    d. monitoring of potential impacts and controls
    e. biodiversity records.
4. Personnel involved in disturbing natural systems shall receive awareness training, and all personnel involved in managing biodiversity shall be trained and competent to do so.
5. Controls for biodiversity impact management documented in land access conditions for the worksite, shall be complied with.
6. Removal of protected fauna from work areas is only permitted when fauna is at risk of harm, or when the fauna presents a risk of harm to people or property.
7. Environmental offsets will only be implemented if impacts to biodiversity values nominated in State and Federal offset legislation cannot be avoided. Offsets will be commensurate with the magnitude of the impacts and as close to ‘like for like’ as is practicable.

Coal Seam Gas Water

Intent

To manage the risks associated with storage, use, treatment and disposal of coal seam gas water.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Processes shall be implemented to ensure compliance with relevant legislation and regulatory requirements associated with coal seam gas water.
2. The necessary Arrow regulatory approvals to adequately deal with coal seam gas water shall be in place prior to commencing activities involving coal seam gas water. Coal seam gas water shall only be used for approved purposes.
3. Appropriate risk assessments shall be conducted and controls implemented, to reduce risks associated with the management of coal seam gas water, including brine, to as low as reasonably practicable.
4. Where identified as part of the risk assessment, a documented plan to avoid and minimise impacts associated with coal seam gas water shall be developed and implemented. This plan shall address, but not be limited to:
    a. controls for storage, use, treatment and disposal of coal seam gas water including brine.
    b. beneficial use arrangements
    c. monitoring of potential impacts and controls
    d. maintenance of coal seam gas water management records.

Land Management

Intent

To ensure land disturbance is managed to minimise environmental impacts, and where land is impacted by Arrow activities, it is returned to an agreed condition.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. In addition to this Standard, Arrow has the following procedures: Land Disturbance; Rehabilitation; and Vehicle and Machinery Hygiene. Contractors are required to, as a minimum, put in place documented procedures that meet or exceed the requirements of both this Standard and the associated Arrow Procedures note above.
2. Processes shall be implemented to ensure compliance with legislation and regulatory requirements associated with land management.
3. Prior to land disturbance, ensure that appropriate risk assessments are conducted and controls implemented to reduce risks to as low as reasonably practicable.
4. Where identified as part of the risk assessment, a documented plan to avoid and minimise impacts to land shall be developed and implemented. This plan shall address, but not be limited to:
    a. pre-clearance land and landform condition
    b. vegetation clearing controls
    c. weed and pest management controls
    d. soil management, including amelioration and topsoil management
    e. erosion and sediment controls
    f. soil contamination controls
    g. restoration of disturbed land and landform (via rehabilitation) to a pre-defined, agreed land use
    h. monitoring of potential impacts and controls
    i. land disturbance and management records.
5. Where high risk weeds are identified as part of the risk assessment, the plan shall include information on the location of the weeds and management measures for these weeds including treatments and monitoring.
6. All personnel involved in land disturbance shall receive awareness training, and all personnel carrying out land disturbance activities shall be trained and competent to do so.
7. Landholder requirements for land management, as documented in land access conditions, shall be complied with.
8. For Arrow landholdings, Arrow's pest management programs which apply to that land shall be complied with.
9. Land disturbance shall not be carried out without specific authorisation.
10. When operating on agricultural land, activities shall be managed to maintain the viability of existing and future agricultural operations.

Air Quality

Intent

To ensure that environmental risks associated with air emissions from Arrow's activities including dust, planned and fugitive emissions, accidental releases, fumes and mists are managed appropriately.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Processes must be implemented to ensure compliance with relevant legislation and regulatory requirements associated with air emissions.
2. Ensure that the appropriate assessments of air quality impacts (health and well-being, amenity and ecological) are conducted, and that controls are implemented.
3. Where identified as required:
    a. Complete air quality impact studies prior to the installation of new equipment, including the evaluation of cumulative and regional impacts on air quality of the activities.
    b. Provide for emissions monitoring in the design and installation of new equipment, particularly those with significant combustion emissions, by providing appropriate ports for sampling and safe access.
    c. Implement a preventative maintenance program for combustion engines and exhausts, including vehicles and machinery.
    d. Control dust emissions.
    e. Develop and implement monitoring programs for dust, fugitive emissions and air pollutants.
4. Use competent persons to carry out air quality monitoring and assessments.
5. Ensure complaints associated with air quality are managed in accordance with Arrow's Complaints Management System.

Greenhouse Gas

Intent

To ensure that all staff and contractors manage risks associated with greenhouse gas emissions from Arrow's activities are managed appropriately.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Processes must be implemented to ensure compliance with relevant greenhouse gas legislation and associated regulatory requirements.
2. Ensure that the appropriate assessments are conducted, that controls are implemented to manage greenhouse gas emissions both in the design phase and during operations, and that risks are reduced to as low as reasonably practicable.
3. Where identified as part of the assessment, a documented plan shall be developed and implemented to minimise greenhouse gas emissions i.e. greenhouse gas and energy management plan (GHGEMP). The GHGEMP shall address, but not be limited to:
   a. controls to avoid, minimise and mitigate greenhouse gas emissions
   b. monitoring of controls and emissions
   c. maintenance of records
   d. reporting and assurance requirements.
4. Use competent persons to carry out greenhouse emissions reporting and management.
5. Contractors must understand the contractual obligations with respect to emissions and energy reporting. Unless agreed otherwise, contractors are responsible for determining and meeting greenhouse gas regulatory reporting obligations associated with activities performed for Arrow. Contractors may have to provide data to other contractors in some cases to meet these obligations.
6. Arrow shall develop and maintain systems that measure, report and forecast greenhouse gas emissions that:
   a. allow ongoing evaluation of Arrow's greenhouse gas emissions performance
   b. meets the requirements of internal and external stakeholders
   c. provides independent assurance and review of greenhouse gas inventories and estimation methodologies.
7. Arrow shall establish and maintain governance in relation to greenhouse gas emissions management that clearly allocates responsibilities and ensures that all relevant interests are represented.

Waste

Intent

To ensure that the risk associated with waste generation, storage, treatment and disposal at Arrow sites are management appropriately.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Processes must be implemented to ensure compliance with legislation and regulatory requirements associated with wastes, including waste records.
2. Appropriate risk assessments for wastes must be undertaken, risk controls implemented, and risks reduced to as low as reasonably practicable.
3. All personnel carrying out waste management activities shall be competent to do so.
4. Wastes associated with site operational and project activities must be identified (type and quantity) and documented. A plan for management of these wastes that considers avoidance, minimisation, reuse, recycling, storage and containment, segregation and disposal must be documented. Records which support the plan's requirements must be generated and maintained.
5. Personnel who have roles in implementing the plan, must be made aware of the associated requirements of the plan.
6. Wastes must only be disposed in appropriate, government approved disposal sites using approved methods and contractors.

Amenity

Intent

To ensure that amenity impacts from Arrow's activities are managed appropriately. Amenity impacts include noise, light, odour visual and landscape.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Processes must be implemented to ensure compliance with relevant legislation and regulatory requirements associated with amenity management.
2. Ensure that the appropriate amenity risk assessments are conducted, and controls implemented to reduce risks to as low as reasonably practicable. Assessments shall consider noise, light, odour, landscaping and visual intrusion impacts, and shall be undertaken at the design phase of an activity as well as at subsequent stages as relevant.
3. Where identified as part of the risk assessment:
    a. locate, design and operate infrastructure to minimise amenity impacts
    b. determine potential noise impacts and implement controls to manage the impacts of noise associated with activities
    c. minimise the extent of disturbed areas that are visible from public roads, residences and towns
    d. minimise the visual contrast between equipment and structures and the surrounding landscape
    e. avoid making permanent changes to natural landforms where practical
    f. document amenity impact control measures
    g. develop appropriate monitoring programs
    h. maintain management and monitoring records.
4. All personnel associated with amenity management shall receive awareness training, and all personnel carrying out monitoring activities shall be trained and competent to do so.
5. Landholder requirements for amenity management, as documented in land access conditions, shall be complied with.
6. Sensitive receptors shall be identified where there is potential for impact from Arrow's activities.
7. Ensure that stakeholders are consulted to identify and understand local environmental values to be protected, prior to commencing activities that have the potential to cause impacts.
8. A plan which addresses amenity impacts from blasting activities must be developed prior to planned blasting activities, and controls shall be implemented in accordance with the plan.
9. Ensure all complaints associated with amenity are managed in accordance with Arrow's Complaints Management System.

Groundwater

Intent

To ensure the risks associated with groundwater supply and quality resulting from Arrow's activities are management appropriately.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Processes shall be implemented to ensure compliance with legislation and regulatory requirements associated with groundwater management.
2. Appropriate risk assessments shall be conducted, and controls implemented, to reduce risks associated with groundwater supply and quality to as low as reasonably practicable.
3. Where identified as part of the risk assessment, a documented plan to avoid and minimise impacts to groundwater supply and quality shall be developed and implemented. This plan shall address, but not be limited to:
    a. identification of groundwater aquifers and assessments of groundwater characteristics as appropriate
    b. identification of groundwater users
    c. controls for avoiding, minimising and mitigating groundwater impacts including management of materials used for coal seam gas extraction
    d. monitoring of potential impacts and controls
    e. maintenance of groundwater management records.
4. All personnel involved in equipment or procedures specific to groundwater shall receive awareness training, and all personnel carrying out groundwater management activities shall be trained and competent to do so.
5. All materials and wastes with the potential to cause groundwater contamination shall be stored to appropriate standards.
6. Stakeholders shall be consulted to understand local environment values and to identify groundwater uses.
7. Activities and infrastructure shall be designed to prevent unintentional mixing of aquifers.
8. For hydraulic fracturing operations, a specific plan which addresses local groundwater uses, the outcomes of risk assessments and potential monitoring programs, shall be developed and implemented.

Venting and Flaring

Intent

To ensure that venting and flaring is appropriately managed for facilities and facilities in design.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

1. Intentional venting and flaring must be reduced as low as reasonably practicable.
2. Intentional venting is to be restricted to situations where flaring is not technically possible or safe. Venting from Arrow assets is not permitted except under the following circumstances:
   - **a.** Existing facilities: from existing process vent stacks. The need for venting from existing facilities will require review against requirements 1 and 2 when major works are planned on the facility or the facility relief systems.
   - **b.** Secondary relief systems: employed to maintain process integrity (such as bust disks and relief valves).
   - **c.** Intentional fugitive emission sources: such as high point vents, low point drains and gas actuated equipment. Inclusion of such equipment in new facilities shall be subject to economic evaluation of alternatives.
   - **d.** Venting for maintenance, repair or commissioning where flaring has been shown to not be technically practicable.
   - **e.** During an emergency: when doing so prevents damage to people, plant and property.
   - **f.** The design of new facilities is not to include venting unless all other depressurisation options are not technically possible or safe.
3. Flaring from Arrow assets is not permitted except under the following circumstances:
   - **a.** Exploration and appraisal: where the gas flared is remote to gas collection systems.
   - **b.** Commissioning plant and equipment: where the release of gas is required as part of commissioning new infrastructure. Commissioning flare gas requirements will be estimated before activity starts. Actual release will be monitored and reported.
   - **c.** Maintenance and outage of plant.
   - **d.** When it is not commercially or technically feasible to use the gas commercially or for an authorised activity
4. The intent is for all existing facilities to have annual quotas in relation to venting and flaring. Quantities must be reported against these quotas. When venting/flaring events are projected to be above quotas, a risk assessment is required that addresses the following:
   - **a.** Rationale for gas disposal.
   - **b.** Anticipated quantity and how the gas will be measured.
   - **c.** If venting is proposed, detailed explanation of why flaring was not technically practicable.

   This risk assessment is to be approved by both the line VP and VP HSE. Where venting/flaring has occurred without an approved risk assessment, these events must be reported as an incident and subject to investigation to identify and rectify causes.

Venting and Flaring continued…

Definitions

The loss of coal seam gas from our operations to the atmosphere i.e. gas not sold or combusted to provide power or heat as part of our gas processing, can be classified into flaring, venting and fugitive emissions for the purposes of this standard:

Flaring is the intentional release of unwanted raw or processed coal seam gas via a flare to the atmosphere – gas released via flaring is combusted.

Venting is the intentional release of raw or processed coal seam gas in an uncombusted state above the threshold quantity. This definition excludes the release of process emissions containing trace quantities of methane where all practicable steps have been taken to maximise recovery.

Fugitive emissions are un-combusted emission sources of gas released both intentionally (e.g. by virtue of plant design – instrument gas, high point vent) and unintentionally (e.g. leaks and release that result as a result of loss of containment) that are below the venting threshold.

Intentional fugitive emissions, venting and flaring will be controlled by the applicable greenhouse gas and energy management plan (GHGEMP) as required under the Greenhouse Gas standard.

Unintentional fugitive emissions will be controlled by maintenance and asset integrity processes. Unintentional releases of gas above the Arrow thresholds are to be reported as loss of containment incidents.

Threshold the threshold for this standard is defined as 500 kg per event. Where the release is continuous or recurring a cumulative threshold of 10 tonnes of gas released per annum also applies (other loss of containment thresholds exist in relation to Asset Integrity and Process Safety and regulatory reporting requirements). All unintentional fugitive releases greater than 500 kg are to be raised as a loss of containment incident under this standard.

Process Safety Elements

Intent

This standard outlines Arrow Energy's mandatory process safety elements. These apply during the entire lifecycle of Arrow assets that process pressurised hydrocarbons or untreated coal seam gas water.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

Requirements

Risk Management

1. Identify and document hazards with a risk rating of "High", or with an impact of "Very High", on the Arrow Energy risk assessment matrix for all assets in line with Arrow's Hazard Management standard.
2. Manage identified risks to As Low As Reasonably Practicable (ALARP).
3. Manage the competence of employees in HSE critical positions in line with Arrow's HSE Competence Standard.
4. Manage the fitness for work of employees in line with Arrow's Fitness for Work Standard.
5. Verify that contract holders monitor the HSE requirements of the contract that are relevant to the competence and fitness for work of contractor staff.
6. Provide supervision of HSE critical activities.
7. Develop a Project2Asset before commissioning or starting a greenfield asset or a Statement of Fitness before re-starting a brownfield asset that has been modified, subjected to conditions beyond the original design parameters, overhauled or subjected to uncontrolled shutdown.

Design and Construction

8. Apply the Arrow Project Management System (APMS) where required to establish technical integrity in design and construction.
9. Apply the mandatory Arrow Energy Engineering Design philosophy, design criteria and specifications as approved by the Central Engineering Manager whenever designing or constructing new assets or making permanent or temporary modifications to existing assets.
10. Meet the Arrow Energy Process Safety Basic Requirements in line with the Process Safety Basic Requirements Standard.
11. Create, maintain and make available data, information and documentation for HSE critical equipment, including data, information and drawings that are critical to managing process safety.
12. Perform process safety reviews for new assets, modifications to existing assets, and at least every five years for existing assets.

Operations, Inspection and Maintenance

Establish and maintain procedures:

13. For access, use of equipment and performing work.
14. To operate HSE critical equipment within its operational limits.
15. To inspect the technical integrity of HSE critical equipment.
16. To maintain HSE critical equipment.

Control hazards during inspection and maintenance activities:

17. Follow requirements specified in the Arrow Permit to Work system in line with the Arrow Energy Permit to Work Standard.

Leadership and Culture

18. Demonstrate process safety leadership through measurable and visible actions in line with Arrow HSE Leadership and Commitment Standard. Use the Process Safety Fundamentals to communicate and implement the key process safety elements applicable to frontline personnel.
19. Appoint a competent manager with single point accountability for process safety management for each lifecycle phase of an asset.
20. Know what hazards the asset has, with a risk ranking of "High" or with an impact of "Very High", on the Arrow risk assessment matrix, and know how these risks are managed to As Low As Reasonably Practicable.
21. Review the process safety risks to the assets at least annually.
22. Review the process safety risks to the Arrow organisation at least annually.

Process Safety Basic Requirements

Intent

To prevent re-occurrence of known process safety incidents by focussing on their main causes and key barriers.

All Line Managers are responsible for implementation and compliance with this Standard.

Contractors must meet or exceed the requirements of this Standard.

This Standard does not apply to Abandonment activities.

This standard applies to Process Safety Major Accident Hazards (MAH). That is all assets with process safety hazards with a risk rating of “High” or with a consequence category of “Very High” on the Arrow Energy risk assessment matrix, and that are used for exploring, drilling, producing, processing, transporting or storing hazardous substances or energy, including contracted 3rd party assets.

Requirements

1. **Safe siting of occupied portable buildings**
   Relates to the risk to people who are occupying portable buildings and applies to Assets with Process Safety Hazards with risks that are ranked High or that have a potential safety consequence of Very High**.**
   - **a.** Portable blast resistant buildings:
     - **i.** Shall be rated for a peak side-on overpressure of at least 55 kPa with a duration of at least 100 ms.
     - **ii.** Location shall be assessed and approved.
     - **iii.** Design shall be in accordance with suitable standards.
   - **b.** All other buildings shall be located in accordance with suitable standards.
2. **Permit to Work**
   (Refer to Arrow Energy Permit To Work Standard)
   Relates to controlling hazardous work, and work that could interfere with other hazardous operations, using a written procedure that establishes and communicates the controls necessary for safe working. Applies to hazardous work that does not have established control measures, and work that could adversely affect the control of HSE risk in other operations occurring at the same time, or that could itself be adversely affected by these operations.
   - **a.** Meet the requirements for Permit to Work systems specified under the Permit to Work Standard.
   - **b.** Verify the effectiveness of the Permit to Work system of the asset using a tiered approach, ranging from daily monitoring to less frequent internal assessments.
   - **c.** Make the effectiveness of the Permit to Work system and the Permit to Work verification process part of HSE assurance checks.
3. **Emergency Shut Down Valves**
   Relates to the risk of harm to people occupying facilities which have Process Safety Hazards with risks that are ranked High or that have a potential safety consequence of Very High.
   - **a.** For pipelines containing flammable or toxic fluids[1] an Emergency Shut Down valve shall be installed. The Emergency Shut Down valve shall be located in a position:
     - **i.** In which it can be safely inspected, maintained and tested.
     - **ii.** Such that its exposure to facility incidents is minimised.
4. **Management of Change**
   Relates to avoiding incidents resulting from unforeseen consequences of process, procedural or organisational change. Management of Change applies to Process Changes (hardware, process control and process conditions changes), Procedural Changes and Organisational Changes as per the requirements of the Management of Change Standard.
   - **a.** Meet the requirements for Management of Change processes specified under the Management of Change Standard
   - **b.** Verify the effectiveness of the Management of Change procedure of the asset using a tiered approach ranging from daily monitoring to less frequent internal assessments
   - **c.** Make the effectiveness of the Management of Change procedure and the Management of Change verification process part of HSE assurance.

[1] Flammable and toxic fluids are Category B, D and E as defined in ISO 13623:2000 Petroleum and natural gas industries – Pipeline transportation systems

5. **Avoid liquid release relief to atmosphere**
Relates to the risk to people due to release and ignition of flammable hydrocarbons. Applies to Assets with Process Safety Hazards with risks that are ranked High, or that have a potential safety consequence of Very High, and are used for producing, processing, transporting or storing hydrocarbon liquid above its flash point.
   a. Create for each asset an inventory of all atmospheric vents that have the potential to release hydrocarbon liquid above its flash point.
   b. Assess the risk of each of these vents and define the risk mitigation.
   c. Document and implement the resulting remedial measures.

6. **Avoid tank overfill followed by vapour cloud release**
Relates to the risk to people due to release and ignition of flammable hydrocarbons. Applies to Assets with Process Safety Hazards with risks that are ranked High, or that have a potential safety consequence of Very High, and are used for producing, processing, transporting or storing hydrocarbon fluids with the potential to form a vapour cloud.
   a. Create for each asset an inventory of all storage tanks that have the potential to overfill resulting in a vapour cloud explosion. Examples of such fluids are finished gasoline, special boiling point solvents SBP 1 and SBP 2 and natural gas liquids.
   b. Assess the risk of each of tank and define the risk mitigation.
   c. Document and implement the resulting remedial measures.

7. **Avoid brittle fracture of metallic materials**
Relates to the risk to people due to release and ignition of flammable hydrocarbons. Applies to Assets with Process Safety Hazards with risks that are ranked High or that has a potential safety consequence of Very High and are used for producing, processing, transporting or storing liquefied gas (LPG, LNG) or compressed, flammable low molecular weight hydrocarbon gas.
   a. For each asset determine the lower design temperature (LDT) or alternatively the minimum allowable temperature (MAT) for all unfired pressure vessels, heat exchangers, piping, piping components and valves (including control valves) or rotating equipment that contains liquefied gas or compressed flammable low molecular weight hydrocarbon gas.
   b. Take measures to prevent the equipment being exposed to pressure when below the LDT or alternatively ensure that the equipment metal temperature is not below MAT at any given operating pressure. Consider scenarios in which equipment temperature can drop such as blow downs, as well as scenarios of subsequent pressurisation of equipment.

8. **Alarm management**
Relates to the risk to people and the environment due to lack of control in abnormal operational situations. Applies to Assets with Process Safety Hazards with risks that are ranked High, or that have a potential safety consequence of Very High.
   a. Each asset shall have an alarm management system that provides the operator with an adequate set of warnings against excursions beyond its safe operating limits, both during normal operation and during abnormal situations (start-ups, shut downs and upsets), whilst minimising and, where necessary suppressing, standing, nuisance and repeating alarms and alarm flooding.

9. **Sour Gas (H2S)**
Relates to the risk to people and the environment due to exposure to Sour Gas (H2S) and applies to facilities and activities where Sour Gas may be present.
   a. Meet the requirements specified in the Chemical Management Standard.
   b. Assess the safety risks for Sour Gas operations, including non-routine operations, concurrent operations and confined space entry.
   c. Meet the requirements specified in the Incident and Emergency Management Standards.
   d. Base emergency incident scenarios on Sour Gas dispersion modelling and take into account local regulations.
   e. Include identification of evacuation sites and evacuation activities in the testing of Emergency Response.

Table 1 Contractor Applicable Procedures

Standard	Procedure
Electrical Safety	Electrical Safety Rules ORG-ARW-ELE-SPR-00020
Land Management	Land Disturbance ORG-ARW-HSM-PRO-00146
	Land Rehabilitation ORG-ARW-HSM-PRO-00073
	Vehicle and Machinery Hygiene ORG-ARW-HSM-PRO-00138

Links provided to Arrow documents accessible via Arrow intranet (ASSAI).
Documents also available via Arrow Contractor portal.

Table 2 Referenced Codes of Practice, Industry Specifications

Standard	Reference
Journey Management and Driver Safety	Safer Together* - In-Vehicle Monitoring System Specification
	Safer Together* - Heavy Vehicle Specification
	Safer Together* - Light Vehicle Specification
Confined Space Entry	Confined Spaces Code of Practice 2011
Electrical Safety	Electrical safety code of practice 2010 – Working near overhead and underground electric lines
	Electrical safety code of practice 2013 – Managing electrical risks in the workplace
	Electrical safety code of practice 2010 – Works
Excavation	Excavation Work Code of Practice 2013
Hot Work and Gas Detection	Code of Practice for Leak management, Detection and Reporting for Petroleum Operating Plant
Lifting, Loading and Unloading	Mobile Crane Code of Practice 2006
Safe Isolation	Electrical Safety Code of Practice 2013 – Managing electrical risks in the workplace
	Managing Risks of Plant in the Workplace Code of Practice 2013
Working at Heights	Managing the Risk of Falls at Workplaces Code of Practice 2018
	Scaffolding Code of Practice 2009
Chemical Management	Managing Risks of Hazardous Chemicals in the Workplace Code of Practice 2013
	Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice 2011
Fitness to Work	Safer Together* - Management of Heat Stress guideline

**Links to external website – Safer Together*

Table 3 Arrow HSE Procedures mapped to HSE standards

Standard	HSE procedure
HSE Leadership and Commitment	HSE MS Standards Compendium ORG-ARW-HSM-STA-00001
HSE Hazard Management	Job Safety Environmental Analysis ORG-ARW-HSM-PRO-00178 HSE Hazard Management Procedure ORG-ARW-HSM-PRO-00017
HSE Compliance	HSE Regulatory Compliance ORG-ARW-HSM-PRO-00026
HSE Planning	HSE Document Deviation ORG-ARW-HSM-PRO-00015 Site Handover ORG-ARW-HSM-PRO-00144
HSE Competence	HSE Competence and Induction ORG-ARW-HSM-PRO-00024
Contractor HSE Management	Contractor HSE Management ORG-ARW-HSM-PRO-00003
HSE Performance Management	Performance Measurement & Reporting ORG-ARW-HSM-PRO-00050
HSE Assurance	HSE Assurance ORG-ARW-HSM-PRO-00059
HSE Systems Review	*Standalone standard*
Management of Change	Refer to business processes
Permit to Work	Permit to Work ORG-ARW-HSM-MAN-00005
Journey Management and Driver Safety	Journey Management and Driver Safety ORG-ARW-HSM-PRO-00041 Lone/Remote Workers Safety & Security ORG-ARW-HSM-PRO-00145 International Travel Safety & Security ORG-ARW-HSM-PRO-00148
Aviation Safety	Aviation Safety ORG-ARW-HSM-MAN-00010 Remotely Piloted Aircraft ORG-ARW-HSM-PRO-00172
Confined Space Entry	Confined Space Entry ORG-ARW-HSM-PRO-00011
Electrical Safety	Electrical Safety Rules ORG-ARW-ELE-SPR-00020
Excavation	Excavation ORG-ARW-HSM-PRO-00039
Gas Detection and Hot Work	Hot Work ORG-ARW-HSM-PRO-00085
Lifting, Loading and Unloading	Lifting, Loading and Unloading ORG-ARW-HSM-PRO-00055
Hazardous Manual Tasks	Hazardous Manual Handling Procedure ORG-ARW-HSM-PRO-00179
Safe Isolation	Lockout, Isolation and Tagging Procedure ORG-ARW-HSM-PRO-00009
Working at Heights	Working at Heights ORG-ARW-HSM-PRO-00012
Mobile and Automated Equipment	Mobile and Automated Equipment ORG-ARW-HSM-PRO-00034
Chemical Management	Chemical Management ORG-ARW-HSM-PRO-00016
Life Saving Rules	LSR Consequence Management ORG-ARW-HSM-PRO-00033
Personal Protection Equipment	Personal Protective Equipment (PPE) ORG-ARW-HSM-PRO-00014
Security	Physical Security ORG-ARW-HSM-PLA-00059
Natural Events	Severe Weather Response ORG-ARW-HSM-PRO-00159 Bushfire Risk Management ORG-ARW-HSM-PRO-00168

Standard	HSE procedure
Emergency Management	Refer to field emergency response procedures Crisis Management Mobilisation ORG-ARW-HSM-PRO-00166 Aeromedical Service Activation for Medical Emergencies ORG-ARW-HSM-PRO-00169
Incident Management	Incident Management ORG-ARW-HSM-PRO-00089
Alcohol and Other Drugs	Alcohol and Other Drugs ORG-ARW-HSM-PRO-00005
Fitness to Work	Fitness to Work and Workplace Injuries ORG-ARW-HSM-PRO-00171 First Aid Management ORG-ARW-HSM-PRO-00008
Occupational Health and Hygiene	Occupational Hygiene ORG-ARW-HSM-PRO-00154 Medical and Health Services ORG-ARW-HSM-PRO-00179
Biodiversity	Fauna Management ORG-ARW-HSM-PRO-00067 Ecological Impact Assessment ORG-ARW-HSM-PRO-00070
Coal Seam Gas Water	Refer to business processes
Land Management	Land Disturbance ORG-ARW-HSM-PRO-00146 Land Rehabilitation ORG-ARW-HSM-PRO-00173 Vehicle and Machinery Hygiene ORG-ARW-HSM-PRO-00138 Pest Management ORG-ARW-HSM-PRO-00096 Weed Management ORG-ARW-HSM-PRO-00139
Air Quality	Air Emissions ORG-ARW-HSM-PRO-00069
Greenhouse Gas	Energy and Emissions Management ORG-ARW-HSM-MAN-00013
Waste	Waste Management ORG-ARW-HSM-PRO-00066
Amenity	Environmental Noise & Vibration Management ORG-ARW-HSM-PRO-00064 Visual Amenity and Lighting ORG-ARW-HSM-PRO-00068
Groundwater	Refer to business processes
Venting and Flaring	*Standalone standard*
Process Safety Elements	Refer to business processes
Process Safety Basic Requirements	Refer to business processes

Links provided to Arrow documents accessible via Arrow intranet (ASSAI).

Complete HSE Workspace can be found https://ausso.assaicloud.com/AWau102/explorer.aweb

Document Administration

Revision history

Revision	Revision Date	Revision Summary	Author
5.0	12 March 2021	1. Aligned to the current organisation structure 2. Incorporated our existing approach to compliance management into our HSE MS standards. 3. Make it easier for contractors to audit against and demonstrate alignment with our requirements. a. Directly referencing our regulatory reference. Arrow and the Contractor can identify a common source of requirements rather than having to review our procedure. b. Align to our assurance process for contractors (requirements as set out in the HSE supplier evaluation, HSE premobilisation and mobilisation requirements) c. More specific identification of what are Arrow requirements vs Contractor requirements d. Removed reference to critical procedures, now refers to a limited set of contractor applicable procedures (refer Table 1) 4. Update look and feel – the new document uses current Arrow colours and includes document administration requirements for document control.	Manager HSE Systems

Key document location

https://ausso.assaicloud.com/AWau102/get/details/CORP/DOCS/ORG-ARW-HSM-STA-00001

Related documents

Document Number	Name
ORG-ARW-HSM-POL-00001	HSE Policy

Acceptance and release

Author

Position	Incumbent	Release Date
Manager HSE Systems	B McMahon	March 2021

Contributors and reviewers

Position	Incumbent	Review Date
Vice President HSE	M Zaunbrecher	December 2020
Safety Manager	B Prain	December 2020
Environment Manager	S Nairn	December 2020
Principal HSE Risk and Process Safety	S McKenzie	December 2020
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Principal Health, Emergency & Security	N Neligan	December 2020

Approver(s)

Position	Incumbent		Approval Date
Vice President HSE	M Zaunbrecher	M. Zaunbrecher M. Zaunbrecher (Apr 18, 2021 15:23 GMT+10)	18/04/2021