JER-8000-MGT-PRO-0010 Design & Development

(AS/NZS ISO 45001:2018, Clause 8.1)

1 INTRODUCTION

The process for the design or development of the services to be provided are planned, controlled and clearly documented to ensure that the services to be provided function as intended and meet all of the user requirements. All aspects of the design are reviewed to ensure that the output meets the design brief including any other statutory or legal requirements.

2 SCOPE

The scope of this procedure includes:

a. planning and control of the design process including the control of changes;

b. translation of the design brief into a design that meets all of the input requirements;

c. modifications to existing design;

d. review of the design at appropriate stages;

e. verification and validation that the design is satisfactory and will perform as intended.

3 Relevant Legal & Other Requirements

- Work Health and Safety Act 2011 (NT)
- Work Health and Safety Regulation 2011 (NT)
- Code of Practice: How to Manage work health and safety risks 2020 (NT)

4 DEFINITIONS

Safety in Design (SID)	Refers to the use of formal processes to identify hazards and assess, prevent and manage risk in the procurement, design, construction or modification of assets including structures, plant or equipment.
Asset Lifecycle	The end-to-end cycle of whole of life asset design, construction, commissioning, operation, and disposal/decommissioning.

5 RESPONSIBILITY

Senior Leadership Team	1. Provides strategic direction on the management of health and safety within defined Executive portfolios. 2. Establishes and maintains effective and proactive processes to manage safety risks associated with structures, plant and equipment in all design, construction and modification activities - in-house, outsourced or shared designs. 3. Ensures that the design process is properly planned and controlled; 4. Ensures that the clients' or users' needs are understood and are translated into a clear design specification; 5. Ensures that the design meets all the specified requirements; 6. Ensures that the design is reviewed to check that it will work as intended; 7. Ensures that design verification and validation is carried out in accordance with the planned arrangements. 8. Ensures adequate resources are available to managers, supervisors and workers in the implementation and operation of this procedure in the business.
Safety Manager	1. Ensures this procedure is fit for purpose and meets all applicable legislative requirements. 2. Critically reviews how safe a design is to construct, commission, operate and maintain. Independently assesses the design for safety considerations. Audits compliance with the SID procedure. 3. Ensures that this procedure is implemented and is regularly reviewed and monitored for ongoing effectiveness. 4. Supports managers, supervisors and workers in the implementation and operation of this procedure in the business. 5. Recommends change or improvement to this procedure as required. 6. Reviews and monitors WHS consultation. 7. Provides advice on WHS consultation requirements.
Managers and Supervisors	1. Ensure the implementation and operation of this procedure within their area of responsibility. 2. Ensure that workers receive appropriate training and education on Safety in Design requirements, and that the appropriate control measures are applied. 3. Provides input into SID processes. 4. Support the consultation process. 5. Recommend change or improvement to this procedure as required.

Workers	1. Ensure they are familiar with the procedure. 2. Comply with this procedure at all times. 3. Maintain currency of training and any competencies where required for specified work tasks. 4. Recommend change or improvement to this procedure as required.
Designer, Manufacturer, Constructor, Suppliers, Works Consultant	1. Ensures that structures, plant and equipment is designed and manufactured with consideration and implementation of ways to minimise risks and ensure safety when operated or used, consistent with the requirements of this procedure. 2. Provides guidance as to how a design is to be built, manufactured, supplied, operated and maintained safely.

6 PROCEDURE

6.1 General

All personnel carrying out design activities are suitably qualified and experienced in accordance with the WHS Management Plan.

The results of design reviews, verification and validation activities, together with any changes and follow up action, are recorded.

The responsibilities and interfaces between all personnel involved in the design process are clearly defined.

Safety in Design (SID) refers to the use of formal processes to identify hazards and assess, prevent and manage risk in the procurement, design, construction or modification of assets including structures, plant or equipment.

SID is most commonly applied at the start of the design, construct/produce, commission, operate, and disposal/decommissioning lifecycle for assets, but should also be applied whenever modifications are to be made to an asset.

SID processes aim to eliminate or control risks to people, the environment and assets across the asset lifecycle, in accordance with specific project expectations. These processes require procurement specialists, designers, manufacturers and constructors to consider ways to minimise risks when assessing the lifecycle of a proposed asset with respect to the following considerations:

a. Is the design safe and compliant with applicable legislation including relevant standards?
b. Can it be constructed safely?
c. Can it be installed safely?
d. Can it be commissioned safely?
e. Can it be operated safely?
f. Can it be maintained safely?
g. Can it be inspected safely?
h. Can it be decommissioned, removed and disposed of safely?

6.2 Design And Development Planning

The design process is planned and controlled such that appropriate resources are available when required.

Project planning includes the consideration of the nature, duration and complexity of the design and development activities; particular process requirements; identification of points when design reviews, verification and validation should be carried out.

Design planning also addresses the control of the project, reliability, safety and environmental aspects; the need to involve the customer and user groups and the documentation required to ensure design and development functions are met.

6.3 Design and Development Input

The design brief takes into account all of the client or user requirements and defines the project requirements as clearly as possible.

Legal and statutory requirements for the appropriate market or country are identified.

Other essential information such as standards and codes of practice that Anchor Safe has committed to implement; including information gathered form previous designs are identified.

The internal and external resource requirements for the design and development of our products and services are identified.

The consequences of failure due to the nature of our product and service are assessed. The level of control required by our customers and other interested parties is determined.

Inputs shall be adequate for the design and development purposes; they will be complete and unambiguous with any conflicts being resolved prior to use.

The asset lifecycle engineering approach used at KGL Resources mandates the use of SID processes, where applicable, to 'design out' health and safety and/or environmental risks. This procedure is intended to complement, not replace, existing good design and engineering practices and KGL Resources risk management requirements. Relevant Codes of Practice and relevant Standards must also be considered and referenced for identifying and implementing risk controls to eliminate or control hazards and risks.

SID processes must be applied throughout the lifecycle of a KGL Resources asset. This requires hazard identification and risk assessment processes to be applied at each logical stage of an asset development, commissioning or modification project. The KGL Resources Risk Framework and associated techniques/tools must be applied within the risk assessment process.

The Safety in Design Assessment Form (JER-8000-MGT-FRM-0036) is to be completed in all circumstances where KGL Resources requires an existing design to be modified, or where a design is being developed for new assets. Managers and Supervisors must ensure that all workers involved in procurement, design and construction activities are aware of the SID process requirements and resources available.

6.4 Design and Development Controls

Designers must be aware of the potential safety, health and wellbeing considerations relating to all people who may impacted by a design and ensure compliance with the applicable obligations under the Work Health & Safety Act 2011 and associated Regulations.
Section 56 of the WHS Act places a duty on the designer to ensure, so far as is reasonably practicable, that workplaces, infrastructure and equipment are safe.

KGL Resources mandates that SID must be considered for any aspect of design work, and that personnel who have control over asset design must understand that it is an obligation upon them to ensure necessary changes are made to the design to make it safer where reasonably practicable.

It is a KGL Resources requirement that all designs are reviewed and approved by a tertiary qualified subject matter expert where the design is load bearing, structural, or likely to interact in some way with persons, or where specifically required by legislation.

The controls applied ensures that the results of the design and development process are clearly defined with reviews carried out as planned.

The design is verified and evaluated to ensure that it meets all of the input requirements.

The design is validated to ensure the design is capable of meeting the application requirements.

Any necessary actions are taken on problems determined during review and documented information is retained in relation to these controls.

6.5 Management of SID Risk Information Across the Asset Lifecycle

6.5.1 Asset Project Risk Activities

Records must be kept up to date for design change decisions, hazards identification, new or changed risk controls implementation, and any changes to procedures.

All proposed design changes, regardless of whether they are classified as minor, through to extreme risks, are to be evaluated and implement in accordance with the KGL Resources Risk Management Framework. All relevant SID considerations including the outcomes of risk assessments and risk controls must be documented in asset project safety management plans.

At the end of each phase of an asset project (as identified in the Project Plan), a verification process is to be used to confirm whether the SID process has been adequately applied, and the risks appropriately addressed. This will take the form of a review by an appointed engineering/project manager before authorisation is granted to allow transition to the next phase of a project.

All new hazards resulting from design changes during the construction phase are to be identified, assessed, recorded and communicated to construction workers so that appropriate risk control measures can be determined and implemented.

SID processes must be applied as appropriate whenever the design is changed. The Project Manager must initiate a review of the design/drawings to identify any hazards that have been introduced as a result of the design change and ensure that appropriate risk controls are identified and recorded on the risk register.

The hazards shall be assessed and controls determined in consultation with workers undertaking the construction work and future operators and maintainers. The hazards and required controls shall be communicated to all construction workers at induction and pre-start meetings. These risk controls shall also be incorporated in Safe Work Method Statements where applicable.

6.5.2 Asset Project Risk Information Handover

Safety in Design post project delivery requires effective communication between all parties involved, including different disciplines, the client and vendors.

Following commissioning and handover of a project, relevant SID information and risk controls are to be incorporated into the asset project safety management plan. Typically, this includes:

a. Updating the Project Risk Register and/ or Environmental Aspects/ Impacts Register,

b. Updating the WHS Safety Management Plan referring to additional or modified requirements,

c. Communication, and

d. Training.

6.6 Design and Development Outputs

We ensure that the design and development outputs have met the input requirements.

We ensure that the outputs are adequate for the subsequent processes in providing our products and services.

We include the applicable acceptance criteria and monitoring and measuring requirements.

We ensure that the product and service are fit for purpose and are safe to use.

We retain documented information related to this design and development process.

6.7 Design and Development Changes

All changes to the design are clearly identified and are controlled to the same standard as original information.

Changes are formally reviewed and approved before being passed on to the appropriate personnel for implementation.

The effect of any changes on the overall design will be evaluated, and the resulting design will be re-checked and validated. Documentation related to changes, results of reviews, authorisation of changes and actions to prevent adverse impacts is retained.

7 SAFETY IN DESIGN RISK MANAGEMENT

KGL Resources ensures Safety in Design is achieved through a risk management approach that complies with legal requirements to manage workplace health and safety risks. The key elements of KGL Resources' systematic approach to risk management includes:

e. Hazard identification

f. Risk assessment, and

g. Risk control activities.

Managers and supervisors with workers undertaking activities to procure, modify, design or construct structures, plant or equipment have the responsibility and authority to implement and enforce this procedure. This responsibility includes a requirement to effectively communicate this procedure and any necessary related policies to all affected staff.

Approval to deviate from this procedure can be given only by the Project Director.

In addition to the requirements outlined in this procedure, third parties such as designers, manufacturers and contractors must comply with Safety in Design requirements, relevant Standards, and obligations arising from work health and safety legislation and regulations.

7.1 Hazard Identification and Risk Assessment

The forum and methods used to identify hazards and assess risks varies dependent on the size and scope of the project. Engaging internal or external design and/or risk consultants early during the conception of a project can assist in identifying a complete and comprehensive list of critical safety aspects that are likely to impact the feasibility, planning and execution of an asset project. Typically, desktop studies, small group and multi-disciplinary workshops that engage participants in brainstorming, checklist and systematic guideword evaluation processes may be used for simpler/smaller asset projects.

More formal risk study methods may be required for reviewing larger project scopes, and should be designed commensurate with the project phase, complexity, information availability, the level of risk for the asset project, and with consideration of specific end-user/operator/maintainer requirements. Suitable techniques/tools may include:

a. KGL Resources Risk Management Framework and tools

b. Hazard and Operability Studies (HAZOP)

c. FMEA/FMECA techniques, or structured What If Analysis

d. Hazard Identification (HAZID) and Hazard Analysis (HAZAN)

e. Fault and Event Tree Analysis, and Cause-Consequence techniques

f. Semi-quantitative risk assessment methods such as Layer of Protection Analysis (LOPA), the determination of Safety Integrity Level (SIL) requirements, etc.

g. Quantitative/Probabilistic Risk Assessment modelling.

7.2 Risk Control Measures

Control measures should always be considered in the order of the hierarchy of controls starting with elimination. In some circumstances, including risks that are assessed as moderate and possible or risk higher risk level, two or more control measures will be required to reduce the risk of exposure.

KGL Resources applies the Risk Control Hierarchy to manage risks, as summarised in Table 1 (below):

Table 1: Risk Controls Hierarchy

Risk Control Hierarchy	
Level 1	Eliminate the hazards
Level 2	Substitute the hazard with something safer
	Isolate the hazard from people
	Reduce the risks through engineering controls
Level 3	Reduce exposure to the hazard using administrative actions
	Use personal protective equipment

Further information on assessing and managing hazardous manual task risk can be found in the Codes of Practice for *Safe Design of Structures* (NT), *Managing the Risk of Plant in the Workplace* (NT) and the guidance material *Guide for Safe Design of Plant* (2014) published by Safe Work Australia.

7.3 Review and Revision of Risk Assessments and Control Measures

SID risk controls must be reviewed to ensure the on-going effectiveness of the controls and to ensure that new risks have not been introduced as the asset project progresses. A review of SID risk control measures includes checking if the hazards originally identified are still present and adding any new hazards that may arise as the asset project progresses. The frequency of review depends on the level of risk identified.

The SID risk assessment and control measures should be reviewed if any of the following circumstances occur:

a. Changes in operational requirements, or physical environment
b. If the original risk assessment is no longer valid
c. A significant change is proposed at the place of work, or change in work practices or procedures on which the risk assessment is based
d. The process, plant or activity is modified
e. New or improved control measures become practicable
f. The risk assessment is more than 5 years old.

8 CONSULTATION

This procedure has been developed and implemented in consultation and co-operation with KGL Resources' workers.

9 RELATED DOCUMENTATION

Related documents can be found on Aconex and in the Job folder referencing the Job number from populated by Aconex.

10 MONITORING, EVALUATION AND REVIEW

VERIFICATION	
Monitoring	Compliance with this procedure will be monitored through training and regular audits.
Evaluation & Review	The risk rating is low, reviewed every 3 years. A review will be undertaken sooner if there are changes to legislation, standards and industry codes, or following a SMS review, changes as defined by WHS Regulators, or to ensure continual improvement.
Version Control	Version 1: May 2026

11 APPROVAL

Konrad LITFIN
Project Director