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CS ENERGY PROCEDURE

PLANT MODIFICATIONS CS-AM-010

Responsible Officer: Principal Mechanical Engineer - Strategy
 Responsible Manager: Head of Process Safety, Strategy and Standards
 Responsible Executive: Executive General Manager Asset Management

DOCUMENT HISTORY

Key Changes	Prepared By	Checked By	Approved By	Date
Original Issue – Portfolio-wide Plant Modification Procedure to replace existing site procedures which differ across each site, developed with consideration of all procedures.	R Conaghan	D Bell B Sinclair	J James D Bell	Dec 2010
New Temporary Modification process added.	W Underhill	D Bell B Sinclair	J James D Bell	Dec 2010
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Updated and Reformatted	S Collard	W Underhill	D Bell	Mar 2012
Temporary modification section updated to provide better definition. Full copy of checklist form removed from attachments and direct link to form added.	R Ravell	R Ravell D Bell	D Bell	17/12/2012
Changes identified from February 2014 review of process and Check Sheet	R. Ravell	D Kendrick	D Bell	19/05/2014
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Revised link to Plant Modification Design Risk Assessment	W Underhill	T Houston	D Kendrick	01/09/2022
Updated based on Engineering Team Feedback	W Underhill	C Trembath	D Kendrick	07/08/2023

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1 DEFINITIONS

For the purposes of this procedure, the following key definitions apply

Term	Definition
Advisor	Person with relevant knowledge in a certain area, e.g. WH&S Advisor, Environmental Advisor, operations specialist, maintenance specialist, etc. Referred to on the Quality Plan and Check Sheet for supporting evaluation of the modification.
As Built	State of the plant and process as per the Approved design and manufacture, including any Approved modifications which have since been implemented
Asset	A physical asset that has potential or actual value to CS Energy. Physical assets usually refer to plant and equipment, inventory and properties owned by CS Energy. A grouping of assets referred to as an asset system could also be considered as an asset. Is inclusive of integrated systems such as control systems.
Asset management	Coordinated activity of an organisation to realise value from physical assets. Realisation of value will normally involve a balancing of costs, risks, opportunities and performance benefits.
Asset management system	A management system for asset management.
Emergency changes	A change necessary to avoid personnel injury, equipment damage, environmental impacts, community complaints and the situation means that it is not possible to utilise the normal plant modification process. Generally, the situation is such that action is required quickly, and the persons required to provide approvals may not be available to meet the requirements of the written MOC process.
Head of Engineering	The Manager accountable for all technical / engineering matters.
Modification	Any change to the physical asset or process from the "As Built" status which may result in a change in process, operation, maintenance or performance, requires a new drawing or a change to an existing drawing / procedure, and which may affect the safety or integrity of people, process or plant. Modifications can be permanent, temporary or emergency changes
Modification File	An official registry file created to contain all documentation relevant to the modification. TRIM is the Document Management System used to manage the official files
Modification Register	A database for the recording and tracking of modification details and status.
Operating Envelope	If you define a set of parameters that are critical to the operation of something, then the operating envelope is the space between the minimum allowed and maximum allowed values for each parameter. Parameters may be temperature, flow rate, pressures, etc.

Term	Definition
Physical Asset	Plant, machinery, property, buildings, vehicles and other items and related systems that have a distinct and quantifiable business function or service and includes any software code that is critical to the delivery of the function of the asset
Plant	Plant means Physical Asset
Plant Modification Review Committee	The Plant Modification Review Committee is the governance body to oversee the Plant Modification process.
Like for Like	<p>The replacement of one item of equipment or component by another that is functionally identical, of similar design standards, specifications and performance characteristics (e.g. size, dimensions, pressure rating, flow rating, metallurgy, etc). Includes:</p> <ul style="list-style-type: none"> • Changes in operating parameters / setpoints <u>within</u> approved safe operating / design limits <p>If a replacement is an improvement on the original, then it is most likely a modification. A change in supplier may indicate a modification.</p>
Senior Engineer / Engineering Superintendent	Engineer responsible for an engineering function, discipline or area of plant. This is a defined plant modification process role where depending on the scope the responsibility can be owned by plant operations or asset management engineering managers. The titles for these roles include – Senior Engineer, Superintendent.
Technical and Support Requirements	All requirements necessary to support the asset over all phases of its life. Includes, but is not limited to - drawings, manuals, competency & training, spares, procedures, schedules, BOMS, identification, labelling, signage, ITP's, SDS's, maintenance routines, operating procedures, etc.
Temporary Modification	Plant Modification which can be implemented for short term durations, <u>not</u> exceeding 60 days, used to resolve unexpected risks associated with safety, Plant failure, unusual process issues or non-compliance.
Work Pack	Package of documents to detail the complete scope of work for the Plant Modification Implementation phase. This pack should include at a minimum the Final Design, technical specification, drawings for construction, ITPs, Inspection and test procedures, commissioning plans and procedures

2 INTRODUCTION



- No modification shall be made to plant or associated systems without proper assessment, authorisation, implementation and documentation. Proper assessment includes evaluation for workplace health, safety and environmental impacts.

Management of Change (MOC) is a critical and essential element of a robust and comprehensive risk-based asset management and safety management system, as changes to plant can introduce new hazards/ defects, or impact on existing risk control measures. There needs to be effective management of all changes to assets and asset systems.

This procedure covers the managing of changes (modifications) to physical asset or process. Plant modifications will be required from time to time due to new technology, obsolescence, plant performance, reliability, safety, access issues, etc. These modifications require rigid control to ensure that the modification is properly assessed, authorised, implemented and documented.

Why?

Failure to properly manage changes can significantly increase the risk of incidents / introduce unintended hazards or defects or reduce the effectiveness of existing controls. Many incidents can be traced, in part, to a MOC process that was not in place or not effective. Many operational incidents can be traced to operating conditions being changed beyond their safe range.

It is so important it is a requirement under the following:

- WH&S regulation 2011, s205
- WH&S Code of Practice – Managing Risks of plant in the workplace, s3.5
- ISO 55001:2014, s8.2 – Asset Management Standard, Management of Change

In addition, proper management of plant modifications procedure will ensure everyday work can be carried out in a safe and efficient way by ensuring the technical and support requirements accurately matches the “as built” configuration of the plant such as:

- Drawings supplied, updated and registered
- Manuals supplied or updated and registered
- Plant identification (KKS) labelling assigned and labels attached to Plant
- Associated procedures updated and approved
- Plant changes communicated effectively, and training carried out where necessary
- Preventative maintenance task updated or developed, approved and implemented in SAP
- Equipment spares list detailed in SAP and held as stock where necessary
- Process control settings aligned with the capabilities and limitations of the plant

3 PURPOSE AND SCOPE

To establish the minimum requirements for managing changes to physical plant and support systems including the:

- Identification and assessment of risks relating to the proposed change
- Establishing the authorities and responsibilities for authorisation and management of the proposed changes, and
- Proper documentation of the change and updating of all associated technical and support requirements.

This procedure applies to all modifications to CS Energy owned and / or operated plant and support systems.

The procedure covers:

- risk assessment of modifications
- the technical approval of the modification design; and
- the methodology for monitoring, reporting and closing of the modification.

The procedure does NOT cover:

- non-plant and process changes such as organisational change
- the financial approval of capital projects covered under the Project Management Framework; and
- the implementation of capital projects.

The implementation of modifications funded by the operational budget is carried out using the current on-site work management processes.

4 WHAT IS A PLANT MODIFICATION?

A challenging aspect of managing modifications is identifying that the proposed modification is in fact a modification or a Like for Like replacement.

Modifications can include:

- Installation of new plant
- removal of redundant plant
- the replacement of plant or components other than like for like
- addition or removal of ICMS, PLC logic
- changes which are performed on a temporary or trial basis
- changes to plant protection or design/safe operating parameters

In determining what constitutes a modification it is helpful to understand what is meant by Like for Like

Like for Like - A replacement of one item of equipment or component by another that satisfies the same design specification and performance characteristics and does not change the function of the plant / process. Like for like are not modifications but do require evaluation and approval.

Changes to equipment can be considered a 'like for like' if:

- the drawings remain unchanged, and equipment can be reconnected to the termination point of the replacement equipment which has been placed in the same position as the replaced unit
- the rating characteristics are identical
- the classification ratings are identical
- the replacement equipment has certification proving compliance with the appropriate Australian Standards

Equipment of similar configuration may have a different detailed specification (e.g. a new model of pump may have a higher discharge pressure or contain a different material) – this is a modification.

Examples of a plant modification include:

- change of lubricant type
- the substitution of a material type
- Removal of plant from use, i.e. obsolete
- Change to approved safe operating parameters
- installing or changing a platform or monorail
- extending a handrail / adding toe-boards
- adding a cubicle to a switchboard
- replacing a section of pipeline on a different alignment
- Equipment / component replacements where drawings changes are required
- Building structural changes (extensions, upgrade, change affecting layout, structure strength/integrity)
- Chemical: Process chemical changes, additives, water treatment changes
- Anything that requires a change to P&ID's
- Change of pressure set points for relief valves
- Temporary modifications to plant, including installation of back up equipment (e.g. additional air compressor)

Attachment 1 contains a guide to determining whether a change is subject to the modification process or not.

4.1 Control System Modifications

What is a control system modification?

- Changing an existing safe/design/established operating envelope
- Changing an existing upper or lower protection limit
 - Establishing/removing a protection limit
 - Adding, removing or changing protection logic
- Change to logic as part of another plant modification

What is not a control system change?

- Changes to control loop tuning parameters within design/safe operating parameters as defined in the OEM manuals or other relevant documentation.
- Changes to sequences and alarms within safe/design/established operating envelope as defined in the OEM manuals or other relevant documentation.

For changes to the control system that are not regarded as modifications, it is sufficient to utilise another system to record/approve the changes, otherwise the modification procedure is to be followed. The establishment of a TRIM folder titled 'Control System minor changes' is required and is to be used to record all changes including the before and after logic diagram with the approval signature of the Control System Engineer, Supervisor Instrumentation & Control or Manager Electrical, Instrumentation & Control.

4.2 Modification Exclusions

Specific scope exclusions are:

- Control Parameter changes within safe/design/established operating envelopes such as control loop tuning
- Changes that are Like for Like as defined above
- Changes that are required for routine temporary modifications that are part of approved and frequent operating or maintenance procedures and where such procedure ensures the change is evaluated and managed to ensure the health, safety and environment risks arising from these changes remain at an acceptable level
 - E.g. attachment of lubricant filtration trolley
- Changes to technical support requirements where the purpose of the change is to reformat, clarify, or to correct typographical errors. Mark-up of field changes to P&ID's may require a Plant Modification to be registered pending a review of the change by the Safety Advisor or Technical RPEQ
- Changes to maintenance PM's are to be made in accordance with the PM Change Procedure
- Changes to the ICT system are to be made in accordance with the ICT Change Control Procedure
- Changes to procedures are to be made in accordance with CS Energy Procedure Review Process
- Changes that are covered by the Like for Like Change Approval Form.

These exclusions do not remove the need for normal safe working practices and procedures to be applied such as the PTW requirements and risk assessments.

4.3 Types of Modification

Modifications can be permanent, temporary or emergency.

A temporary modification may be considered under certain circumstances but must still be viewed as a plant modification and must carry the appropriate approvals. An example of a temporary plant modification may be testing a control system parameter change prior to alleviating some operational problem. Refer to section 6 for further details on the Temporary Plant Modification process.

4.4 Modification Form

An electronic modification Form has been developed for modifications, this has been incorporated into the J5 platform.

Modification Forms are to be completed and approved electronically in the J5 platform. A guide to is available in TRIM.

Records in TRIM

The use of TRIM to record storage is required. It provides a permanent record and a paperless process. Where this is used the approving officer can enter their name in the 'signature' box on the form and enter a comment in the TRIM 'Notes' section as outlined in [B/D/20/8140](#).

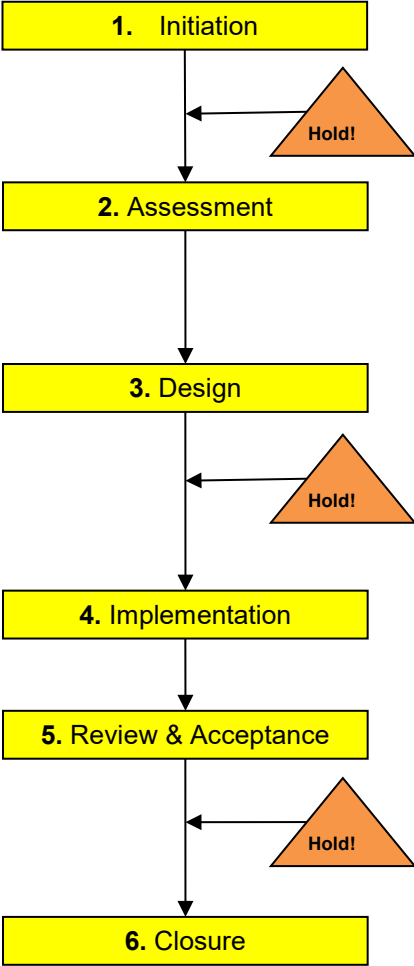
4.5 Modification Register

A plant modification register shall be maintained at all sites in order to manage plant modifications. This register shall be automatically populated in the J5 Platform with custom Power BI reports available.

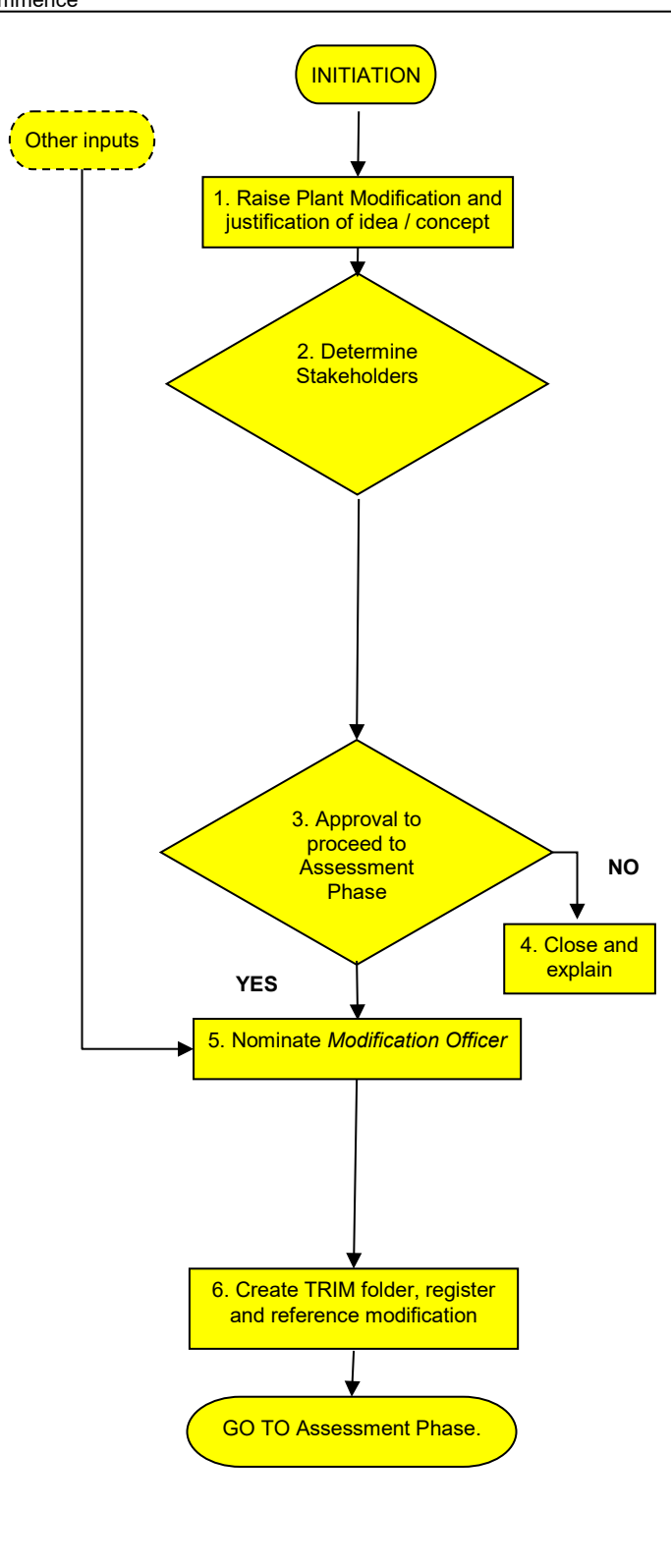
For emergency modifications the operators log is adequate documentation in the first instance, until such time as the proper modification process can be applied.

5 MODIFICATION PROCESS

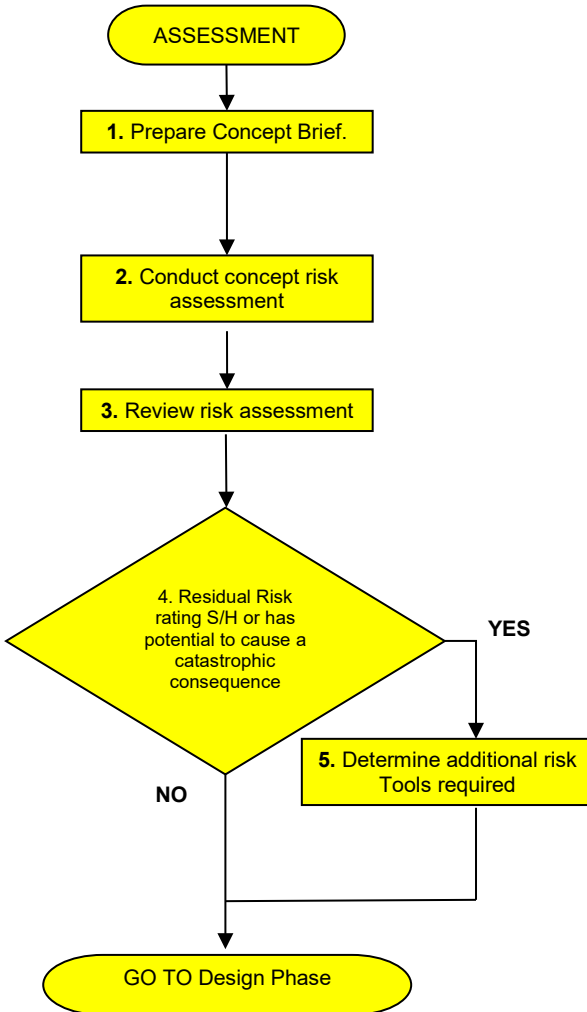
Unless categorised as temporary or emergency, modifications must follow the full modification process.

Process	Step	Comments
 <pre> graph TD A[1. Initiation] --> B[2. Assessment] B --> C[3. Design] C --> D[4. Implementation] D --> E[5. Review & Acceptance] E --> F[6. Closure] H1[Hold!] --> A H2[Hold!] --> C H3[Hold!] --> E </pre>	1	The initiation process takes the initial concept / idea to improve the plant or process to approval to proceed with design, assignment of a modification number and registration into the site Plant Modification Register. NOTE: Any CS Energy personnel may initiate a Plant Modification. HOLD Point: modification or not?
	2	Concept Brief developed to allow initial risk assessment. An extremely important step to assess the risks associated with the proposed change. Requires approval dependent on residual risk level.
	3	Design commences with the identification of Technical and Support Requirements and the ongoing amendments to requirements as the design progresses. Signifies that the modification design and associated risk assessment have been reviewed, revised and are ok to implement. This ensures that all the risk assessment control measures are satisfied and both regulatory and engineering requirements have been met. HOLD Point: Ok to Implement?
	4	Approved change is implemented in accordance with all relevant safety, project and work control processes. The implementation process approves and releases the SAP work order to initiate implementation of the Plant Modification through to completion and commissioning of the Plant Modification.
	5	The review and acceptance process ensures the completion of the works, testing and commissioning, acceptance from all stakeholders, technical & support requirements met and affected personnel are aware of the change and have received relevant training. HOLD Point: Ok to release for operations?
	6	Final Closure approval signifies all technical and support requirements completed, filing of documentation and close out of <i>Modification File</i> and SAP work order.

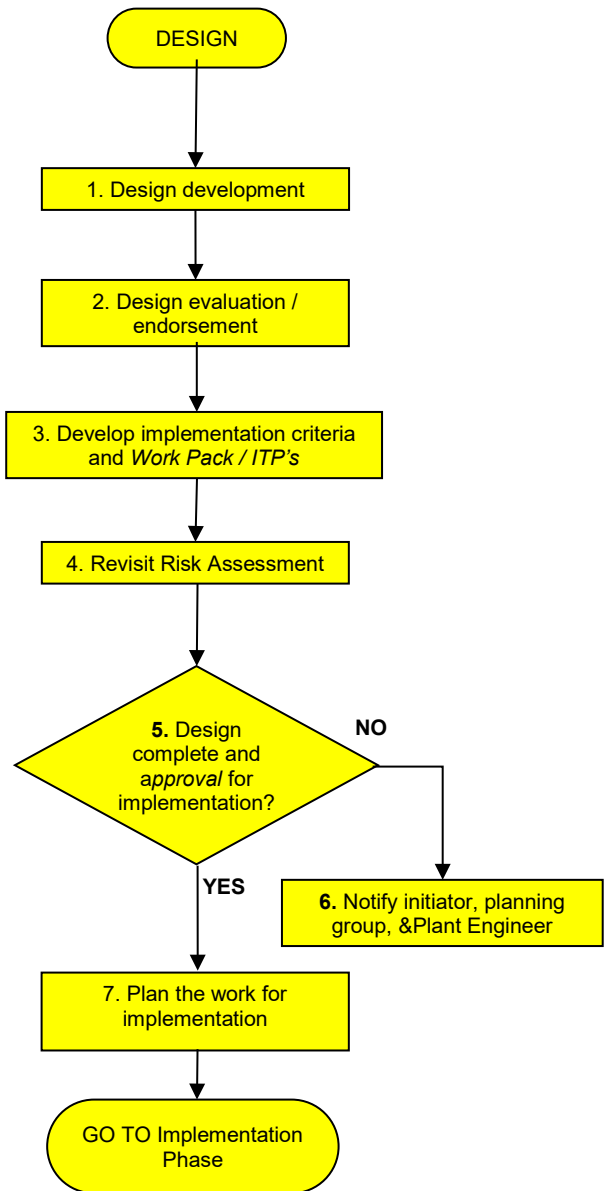
5.1 Initiation

Process	Step	Responsible	Comments
Commence  <pre> graph TD Start([INITIATION]) --> Step1[1. Raise Plant Modification and justification of idea / concept] Step1 --> Step2{2. Determine Stakeholders} Step2 --> Step3{3. Approval to proceed to Assessment Phase} Step3 -- NO --> Step4[4. Close and explain] Step3 -- YES --> Step5[5. Nominate Modification Officer] Step5 --> Step6[6. Create TRIM folder, register and reference modification] Step6 --> End([GO TO Assessment Phase.]) OtherInputs([Other inputs]) -.-> Step1 </pre>		This can be anyone	Initial idea or concept, may also come from other inputs & projects
	1	<i>Modification Initiator</i>	Complete Section 1.1 to 1.6 of Plant Modification Quality Plan in J5
	2	<i>Senior Engineer / Engineering Superintendent</i>	Discuss and agree with relevant stakeholders and / or asset management engineering managers. Identify relevant budget owner.
	3	<i>Senior Engineer / Engineering Superintendent</i>	The Senior Engineer / Engineering Superintendent is required to approve the modification proceeding to the Assessment Phase.
	4	<i>Senior Engineer / Engineering Superintendent</i>	Notify / consult all stakeholders of decision to cancel modification.
	5	<i>Senior Engineer / Engineering Superintendent / Head of Engineering</i>	Nomination of Modification Officer
6	<i>Relevant Administrator</i>	Create TRIM folder / Tag and enter details into the Plant Modification Register. Reference Modification Number on notification.	

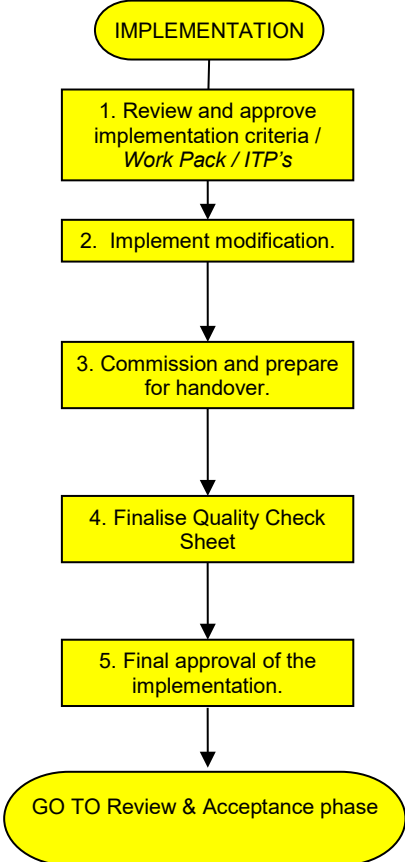
5.2 Assessment

Process	Step	Responsible	Comments
 <pre> graph TD Start([ASSESSMENT]) --> Step1[1. Prepare Concept Brief.] Step1 --> Step2[2. Conduct concept risk assessment] Step2 --> Step3[3. Review risk assessment] Step3 --> Decision{4. Residual Risk rating S/H or has potential to cause a catastrophic consequence} Decision -- NO --> End([GO TO Design Phase]) Decision -- YES --> Step5[5. Determine additional risk Tools required] Step5 --> Step6[6. Evaluate and determine whether the modification will be implemented as an operational expense, capital project or overhaul project.] </pre>	1	Modification Officer	Prepare a Concept Brief. This can be used as a basis for the Investment Approval if the modification is funded through the Project management framework.
	2	Modification Officer	Assess concept risk in conjunction with other relevant specialists / disciplines as required. Use Plant Modification Design Risk Assessment Template. Basis of risk assessment: what potential hazards/risks may be introduced, or current control measures affected by the proposed change?
	3	Senior Engineer / Engineering Superintendent	Evaluate and approve risk assessment
	4	Modification Officer / Senior Engineer / Engineering Superintendent	Significant/High risks to be escalated for evaluation/approval according to CSE Risk Management guidelines.
	5	Head of Engineering	Head of Engineering to evaluate what additional risk tools are required (e.g. Hazop, safety in design reviews etc)
	6	Senior Engineer / Engineering Superintendent	Evaluate and determine whether the modification will be implemented as an operational expense, capital project or overhaul project. Capital projects and Overhaul work is to be implemented using the Project Management Framework.

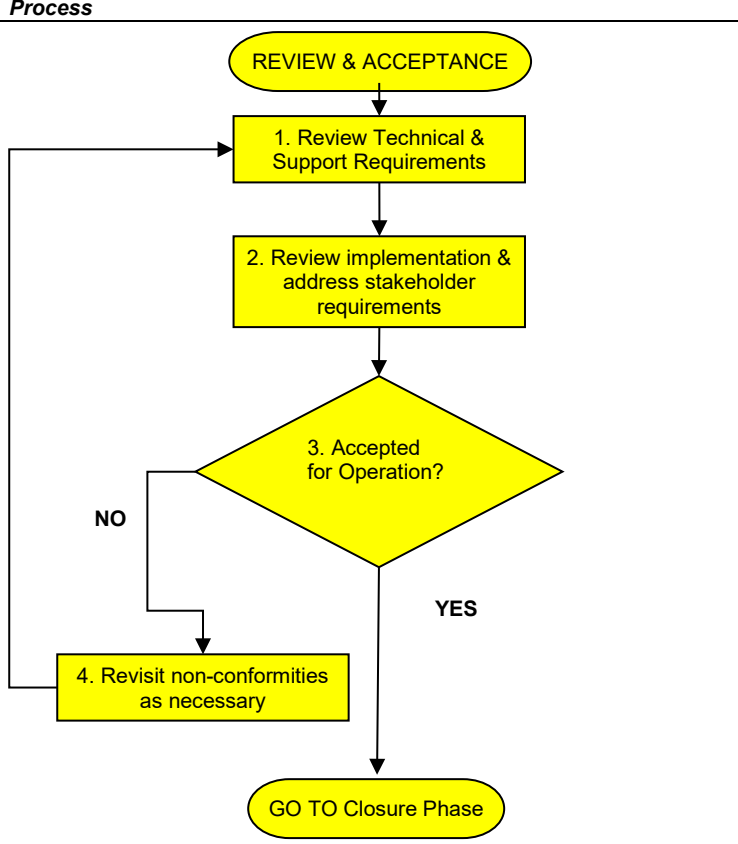
5.3 Design

Process	Step	Responsible	Comments
 <pre> graph TD DESIGN([DESIGN]) --> 1[1. Design development] 1 --> 2[2. Design evaluation / endorsement] 2 --> 3[3. Develop implementation criteria and Work Pack / ITP's] 3 --> 4[4. Revisit Risk Assessment] 4 --> 5{5. Design complete and approval for implementation?} 5 -- YES --> 6[6. Notify initiator, planning group, & Plant Engineer] 5 -- NO --> 5 6 --> 7[7. Plan the work for implementation] 7 --> GO([GO TO Implementation Phase]) </pre>	1	Modification Officer	Facilitate the design development through the relevant internal or external resource/s. Ensure all statutory & engineering requirement are met. Consider all safety and environmental regulatory requirements. Populate the Technical and Support Check Sheet and maintain the currency of the Check Sheet throughout the project.
	2	Modification Officer	Consult / review with Stakeholders and gain Approval from RPEQ's / Advisors. Senior Engineer / Engineering Superintendent signs Quality Plan & Check Sheet where RPEQ disciplines / advisors not required.
	3	Modification Officer	Requirements will vary from one modification to another. Refer to Work Pack examples – Reference [12]. Work Packs / ITP's are important for implementation.
	4	Modification Officer	Revisit risk assessment and finalise in conjunction with RPEQ's and relevant advisors (safety & Environment). Gain approval for revised risk assessment & Controls
	5	Senior Engineer/ Engineering Superintendent/ Head of Engineering	Approval signifies Modification design & risk assessment have been reviewed & approved for implementation. Risk control measures are satisfied and both statutory and engineering standard requirements are met. Note: Head of Engineering shall approve significant or high risk modifications
	6	Modification Officer	Notify stakeholders of decision to defer or cancel the modification
	7	Modification Officer	Utilise necessary Work management processes to implement the modification

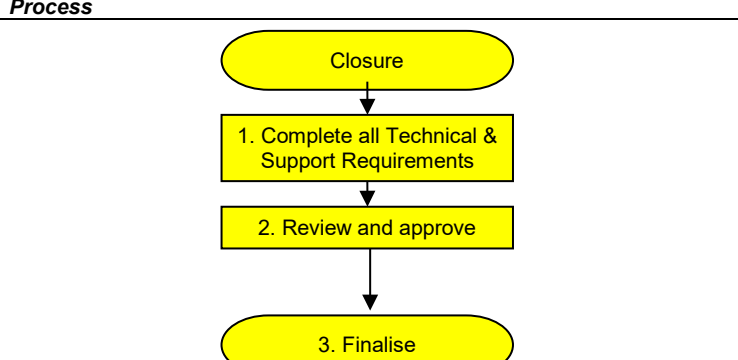
5.4 Implementation

Process	Step	Responsible	Comments
 <pre> graph TD Start([IMPLEMENTATION]) --> Step1[1. Review and approve implementation criteria / Work Pack / ITP's] Step1 --> Step2[2. Implement modification.] Step2 --> Step3[3. Commission and prepare for handover.] Step3 --> Step4[4. Finalise Quality Check Sheet] Step4 --> Step5[5. Final approval of the implementation.] Step5 --> End([GO TO Review & Acceptance phase]) </pre>	1	<i>Plant Engineer / Senior Engineer / Engineering Superintendent</i>	Review and approve the implementation criteria including work packs and ITPs.
	2	<i>Nominated Planner group and Work centre</i>	Implement Modification
	3	<i>Modification Officer</i>	Commission and prepare package for handover. Note: If Engineering approval is required it shall be included in the modification quality documents
	4	<i>Modification Officer</i>	Finalise all aspects of the Quality Plan and Check Sheet
	5	<i>Modification Officer</i>	The Project Manager and the Modification Officer must sign the Quality plan and Check Sheet to indicate that the modification has been implemented in accordance with the approved design and ready for handover.

5.5 Review and Acceptance

Process	Step	Responsible	Comments
 <pre> graph TD Start([REVIEW & ACCEPTANCE]) --> Step1[1. Review Technical & Support Requirements] Step1 --> Step2[2. Review implementation & address stakeholder requirements] Step2 --> Decision{3. Accepted for Operation?} Decision -- NO --> Step4[4. Revisit non-conformities as necessary] Step4 --> Step1 Decision -- YES --> End([GO TO Closure Phase]) </pre>	1	Modification Officer	Ensure all technical & support requirements are complete, or a plan and date is noted on form Section 3a.
	2	Modification Officer	Final review to be carried out by <i>Modification Officer</i> and <i>relevant RPEQ's / advisors / stakeholders</i> - consideration of physical result and documentation required
	3	Senior Engineer / Engineering Superintendent (Section 3a) AND Maintenance Manager and Production Manager	Signifies that modification is implemented to final design, all requirements are met, all affected personnel have been communicated with and trained as necessary, all technical and support requirements have been completed or an agreed plan and date is in place to finalise.
	4	Modification Officer	Revisit non-conformities and correct as necessary before returning to "Accepted for Operation."

5.6 Closure

Process	Step	Responsible	Comments
 <pre> graph TD Start([Closure]) --> Step1[1. Complete all Technical & Support Requirements] Step1 --> Step2[2. Review and approve] Step2 --> End([3. Finalise]) </pre>	1	Modification Officer	Ensure all technical & support requirements are complete.
	2	Modification Officer	Verification of completion of all requirements and performance of modification
	3	Modification Officer	Finalise work orders / update modification register / close files.

6 TEMPORARY MODIFICATION PROCESS

While Temporary Modifications have a limited duration, they may affect plant performance, risk and design. They require control and rigor to regulate their use. Temporary modifications shall have a specified end date.

The Temporary Modification process shall only apply when:

1. The initiator considers the effects to be low risk AND the modification:
 - a) Is planned to be reversed on repair or modification of Plant, OR,
 - b) Is required as trial to confirm the effectiveness before making permanent.
2. A temporary system or equipment has to be connected to the permanent installation for a limited period of time.

These situations may arise:

- When something physically breaks
- When a short-term configuration change is required during significant maintenance refurbishment or upgrades
- When recommissioning or plant maintenance requires third party equipment to be connected to the permanent system.

6.1 Risk Assessment

Prior to implementing a temporary modification, a risk assessment shall be performed by the modification initiator or a technical person responsible for the plant area. The risk assessment must consider the following aspects:

- All hazards/ risks that may be introduced by the proposed modification
- All hazards/ risks that may be introduced during the act of implementing the modification
- All current risk controls that the modification may mitigate when implemented

6.2 Approval for Implementation

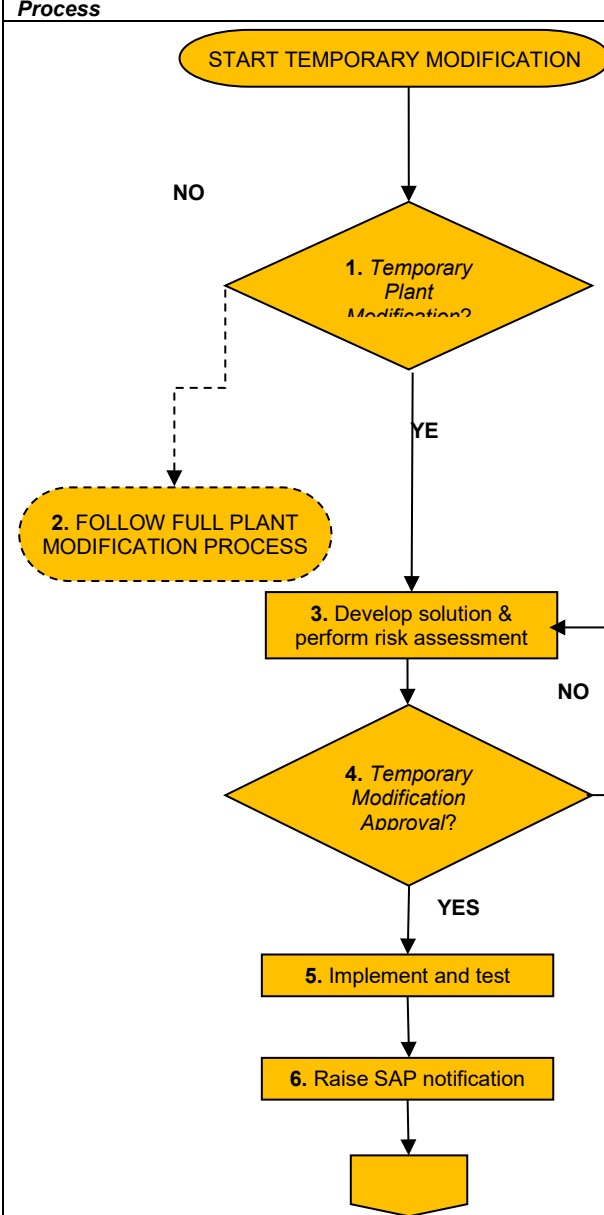
The Senior Engineer / Engineering Superintendent shall approve the implementation of a Temporary Modification. This approval shall be documented on [B/D/10/39813](#), this documentation shall clearly state that this is a temporary modification and the specified end date.

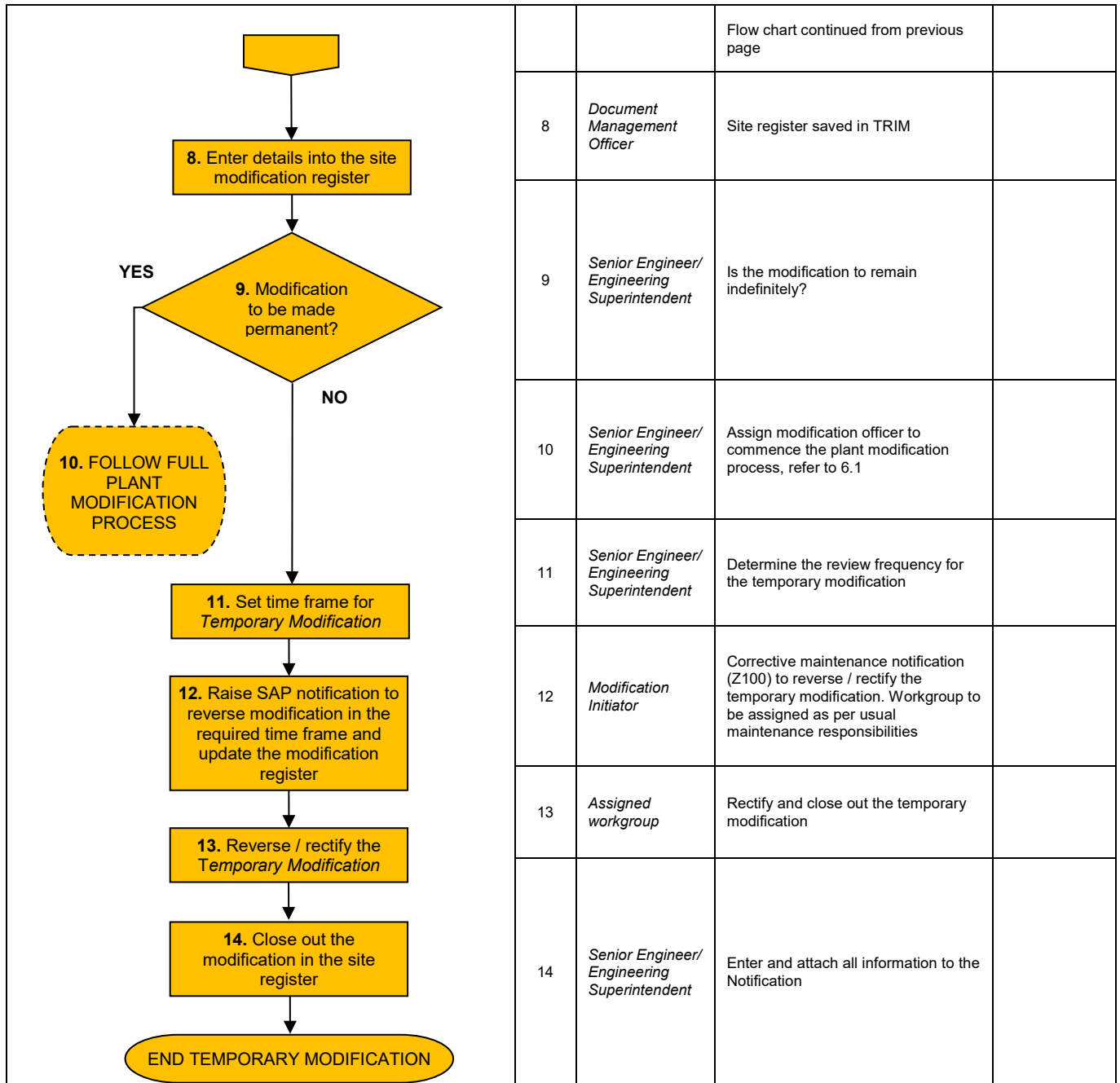
6.3 Approval for Continued Use

The site Responsible Engineering Manager or delegate shall review the implemented Temporary Modification prior to the specified end date at which point the modification is to be:

- Removed and the plant reinstated to the prior state, or
- Made permanent by the application of the modification process.

Temporary modification Process Flow Diagram

Process	Step	Responsible	Comments	Signature
 <pre> graph TD Start([START TEMPORARY MODIFICATION]) --> D1{1. Temporary Plant Modification?} D1 -- NO --> S2([2. FOLLOW FULL PLANT MODIFICATION PROCESS]) D1 -- YES --> S3[3. Develop solution & perform risk assessment] S3 --> D2{4. Temporary Modification Approval?} D2 -- NO --> S3 D2 -- YES --> S5[5. Implement and test] S5 --> S6[6. Raise SAP notification] S6 --> End[/ /] </pre>			Initial idea or concept this can be anyone	Responsible person to sign each step completed
	1	Modification Initiator	The Temporary Modification process shall only apply when: 1/ The initiator considers the effects to be low risk, AND (a) the modification: Solves an urgent need to protect people, plant or production, OR; (b) Is planned to be reversed on repair or modification of Plant, OR, (c) Is required as trial to confirm the effectiveness before making permanent. 2/ A temporary system or equipment has to be connected to the permanent installation for a limited period of time.	
	2	Modification Initiator	Refer to 6.1 Plant Modification Initiation Process	
	3	Modification Initiator	Document suggested solution and associated risks avoided and created. Example Reference [2] Plant Modification Design Risk Assessment Template	
	4	Senior Engineer/ Engineering Superintendent	Approve the temporary modification after consultation with relevant technical staff. If the residual risk is high, the modification to be signed off by Head off Engineering.	
	5	Modification Initiator	Document implementation	
	6	Modification Initiator	Use SAP transaction (ZW25), include all modification documentation and forward to the Senior Engineer/ Engineering Superintendent	
			Flow chart continues on the next page	



7 LIKE FOR LIKE COMPONENT REPLACEMENT PROCESS


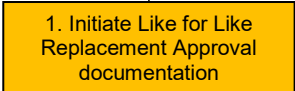
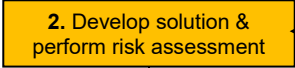
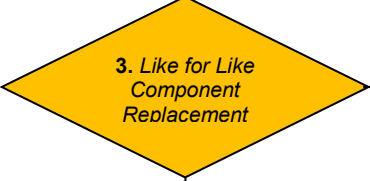



7.1 Responsibility for Progression

The Maintenance Supervisor shall be accountable and one of their team shall be responsible for the progression of the Like for Like component evaluation, implementation and closure. The Asset Engineer (RPEQ) shall be responsible to complete technical review and approve the component replacement.

7.2 Approval for Implementation

The Asset Engineer (RPEQ) shall approve the implementation of a Like for Like Component Replacement. This approval shall be documented in J5.

Like for Like Component Replacement Process Flow Diagram

Process	Step	Responsible	Comments	Signature
			Recommendation for replacement can come from the maintenance teams	Responsible person to sign each step completed
	1	<i>Resource nominated by Maintenance Supervisor</i>	Like for Like Component change form to be created and populated	
	2	<i>Resource nominated by Maintenance Supervisor</i>	Compile documentation of original equipment and recommended replacement	
	3	<i>Asset Engineer (RPEQ)</i>	Review and Approve use of replacement	
	4	<i>Resource nominated by Maintenance Supervisor</i>	Implement the component change	
	5	<i>Resource nominated by Maintenance Supervisor</i>	Document completion with Approval for closure by Maintenance Supervisor	
				

8 EMERGENCY MODIFICATION

An emergency change is a change that must be performed on a true emergency basis because of any of the following conditions”

- To correct a deficiency that would otherwise cause a hazardous condition that is an immediate threat to personnel or the environment
- To correct a deficiency that would otherwise result in a trip of the unit and/or damage to the plant due to equipment fault or design error

Such changes may involve the **temporary** bypassing, bridging or forcing of a piece of equipment, software or ICS code or alarm such that the intended functionality is altered.

Emergency changes are to be approved in the first instance by the shift supervisor and documented in the operator’s log; a risk assessment must still be performed to the extent possible and may not be documented. The shift supervisor should notify the Production Manager. All attempts shall be made to gain verbal approval from Senior Engineer / Engineering Superintendent /H.O. Engineering before implementation, approval or otherwise shall be recorded in the plant log.

Within 24 hours, the change shall be reviewed and approved by both the Production Manager and a relevant RPEQ. At which time the modification is reversed, or the proper modification process initiated.

9 ROLES AND RESPONSIBILITIES

9.1 General Requirements

It is the responsibility of everyone involved in a modification to review the change with respect to their area of responsibility, keeping in mind the following:

- The change and its effects should be fully understood
- The changes should not result in undesirable consequences such as increased hazards to personnel, environment or equipment, or dilution of existing risk control measures
- WH&S and environmental regulatory requirements and impacts must be considered
- Engineering codes, standards and good practice must be used in design, manufacture and installation

9.2 Initiator

Then initiator is the person who raises a proposed modification.

- Identifying the need for a change – including Safety / Financial justification.
- Attaches to modification notification all relevant details such as:
 - Modification description (dot points)
 - Purpose for modification (how does it improve the Plant / process)
 - Suggested solution
 - Sketches
 - Photos

9.3 Modification Officer

The modification officer is the person assigned responsibility for “shepherding” the plant modification through to completion. It is the role of the Modification Officer to follow the Plant Modification procedure, ensure all information is recorded in TRIM/ SAP where necessary and complete the Plant Modification

Quality Plan and Check Sheet. The Modification Officer will coordinate all meetings, risk assessments, reviews, obtain approvals where required, effectively report and close all nominated Plant Modifications.

- Ensures the modification is managed in accordance with the Plant Modification procedure/ process
- Ensures all relevant Officers, RPEQ's and Advisors are informed and consulted as necessary in all phases of the process
- Ensures all relevant sections of the modification Quality Plan and Check Sheet and other associated documentation / files are completed and accurate
- Coordinating the risk assessment for the modification
- Closing out the modification once all requirements/approvals are met or the proposed modification is cancelled
- Co-ordinate the registering of the Plant Modification and creation of a TRIM folder / tag
- Enter the Plant Modification number into the long text of the SAP work order
- Ensure the Modification Register is updated with all relevant modification details including the current status at any time
- Save all documents associated with the Plant Modification in the nominated Plant Modification folder in the Document Management System (TRIM)
- Initiate a HAZOP study where this is determined as necessary risk evaluation tool. Refer to CS-AM-024 Hazop Guide for more details on the process.
- Develop Work Pack for Plant Modification which may include:
 - Final Design
 - Drawings
 - Technical specification
 - Implementation criteria
 - Inspection and test plans
 - Commissioning plans
 - Commissioning procedures
 - List of support documentation to be updated (Section 2 of Quality Plan & Check Sheet)
- Ensure all work associated with the Plant Modification complies with the specification as defined in the Final Design. Any variations from the technical specification must be approved and recertified by the relevant Technical Specialists (including RPEQs) prior to implementation.
- Ensure that all relevant inspections and tests, including statutory requirements, are carried out and are within the acceptance criteria as defined in the Final Design
- Ensure all commissioning documentation, including ITPs etc as detailed in the acceptance criteria and Work Pack are completed
- Ensure the modified plant has been properly inspected, tested and commissioned
- Ensure all stakeholders are notified of modification completion

The Modification Officer may change during the life cycle of a Plant Modification. In all cases the modification Officer will ensure adequate handover of "in process" modifications.

9.4 Production Manager or Maintenance Manager

The Production Manager or Maintenance Manager responsibilities are derived from the need to ensure the operators and maintainers of the plant are aware of changes that may affect them and the need to ensure the technical and support requirements match the “as built” status of the plant. They may delegate their duties but will remain ultimately responsible where nominated in this procedure for the following:

- Ensure they are aware of and endorse any proposed plant modifications
- Ensure that all proposed modifications are evaluated and dealt with in the morning meetings
- Ensure adequate input into the modification assessment/evaluations and the identification/completion of all relevant technical and support requirements
- Ensure operations and maintenance personnel affected by the change understand the change and its impacts and are trained as appropriate prior to “acceptance for Operation”
- Be satisfied as to the integrity of implemented plant modifications and hazard/risk control measures prior to “acceptance for operation”
- Review and approve temporary and emergency changes as required
- Provide adequate resources to ensure timely finalisation of critical documentation such as KKS master data, plant labelling, drawing updates and registration, updating stock holdings, Maintenance and Operations procedures)

The Senior Engineer / Engineering Superintendent will remain ultimately responsible where nominated in this procedure.

- Initial assessment including review of the priority score to determine acceptance or rejection of the proposal
- Ensures that all Plant Modifications are captured and effectively managed in accordance with the Plant Modification procedure in their area of influence
- Monitor status of all Plant Modifications and review/evaluate as required
- Ensure that nominated Modifications Officers are trained and competent for the role
- Ensure that all site operations personnel are aware of and understand the plant modification process and requirements
- Ensure all changes are properly classified as like for like / modification / temporary modification
- Ensure all necessary Technical Specialists and relevant stakeholders have input into assessments/ evaluations.
- Ensure all modifications do not increase the risk to people, plant or production without due diligence to the assessment and mitigation of such risks. Any acceptance of residual increased risks shall be at the appropriate organisational level.

For each modification;

- Review and approve to implement of each modification, considering only the following:
 - That the modification procedure up to and including design has been adequately followed, giving consideration to the flexible application of the process based on complexity and risk to physical plant or processes;
 - A suitable risk assessment has been carried out and approved by the required cross section of stakeholders;

- The required RPEQ disciplines have approved the design, where these are required within the obligations of the PE (Professional Engineers) Act;
- The required advisor approvals have approved the design.

9.5 RPEQ's and Advisors

- Ensure compliance with all relevant regulatory, design standards, codes, etc are considered, applied in the modification
- Review and technically approve the design where RPEQ signoff is required.

9.6 Head of Engineering

The Head of Engineering is the single point of accountability for compliance to the modification process.

- Ensure consistent approach and process to Plant Modifications across all CS Energy Sites
- Review and approve Plant Modifications which have a residual risk of significant or high
- Periodically review the procedure and Quality Plan & Check Sheet
- Ensure awareness of modification procedure and requirements across all CS Energy divisions, including Operations, Asset Management, Procurement, Projects and Overhauls.
- Periodically review/ audit compliance with modification procedure requirements

10 REVIEW AND AUDIT

The following governance and controls are to be in place to verify the integrity of the modification process.

Modification Register: Used to monitor the progress and status of modifications.

Plant Modification Review Committee: The site governance body to oversee the Plant Modification process. and ensuring:

- a) Plant Modifications are progressed and managed in accordance with CS Energy Plant Modification Procedure (CS-AM-010);
- b) Plant Modification completion is achieved in a timely manner; and
- c) Operations and maintenance teams review the quality of a modification closure.

Self-Assurance Checks: The Senior Engineer / Engineering Superintendents are responsible for conducting periodic self-assurance checks on plant modifications.

Every 3 months, the Heads of Engineering are to ensure their team reviews a sample a total of 3 plant modifications across both sites completed in the prior period in an engineering area not under their delegation.

A checklist is to be completed for each plant modification reviewed.

Any gaps or issues identified should be rectified at the time of the review where possible.

Once the checklist is completed and signed off, scan and store in TRIM (F/20/2296).

A summary of self-assurance check outcomes will be presented at the Plant Modification Review Committee.

Audits: Periodic Audits shall be conducted by both the Asset Management Group and the Internal Audit Department.

11 REFERENCES

Reference No	Reference Title	Author
Intranet Link	Project Management Framework	CS Energy
B/D/12/66357	Procedure - CS-GOV-10 - Determination of RPEQ Responsibility for Engineering Work	CS Energy
B/D/10/39813	Form - S1977 - Plant Modification Quality Plan and Check Sheet	CS Energy
B/D/22/2643	Form - S2361 - Plant Modification Design Risk Assessment Template	CS Energy
B/D/20/7497	Form - S2303 - Plant Modification Self-Assurance Checklist	CS Energy
B/D/20/9246	Charter - Plant Modification Review Committee	CS Energy
Network Link	Email Request - Modification Folder – Callide	CS Energy
Network Link	Email Request - Modification Folder – Kogan Creek	CS Energy
B/D/20/8140	TRIM Tip - Adding Notes to Modification Quality Plans	CS Energy

12 RECORDS MANAGEMENT

In order to maintain continual improvement, suitability, safety and effectiveness of the organisation, registered documents will be reviewed on a two-yearly basis or at intervals specified by legislative or regulatory requirements. Review of registered documents should occur where it has been identified that there are changes in technology, legislation, standards, regulation or where experience identifies the need for alteration to the content. Registered documents should also be reviewed following an incident, change management process, modification or where directed as part of a risk assessment process. A 'review' can simply mean that it has been identified, confirmed and appropriately recorded that no changes are required and that the existing process remains the same.

Government Owned Corporations must ensure that records are retained according to accountability, legal, administrative, financial, commercial and operational requirements and expectations. In compliance with records retention and disposal, all documentation created in relation to business must be retained in line with minimum retention periods as detailed in legal retention and disposal schedules.

13 ATTACHMENT 1 – GUIDE TO PLANT MODIFICATION

NOTE: If in Doubt Ask the Senior Engineer / Engineering Superintendent

