# Hazard Study "Commissioning Phase" Readiness Checklist

## Purpose and Use

Use of this Hazard Study Commissioning Readiness Checklist is mandatory where a HAZID or HAZOP has been triggered in the "Commissioning Phase".

The checklist is used to support a structured and collaborative review at key commissioning stages to confirm that hazard study outcomes relevant to commissioning have been addressed, implemented, and communicated.

Where a formal hazard study is not required, or where commissioning activities are low risk, use of this checklist is not mandatory and may be applied at the discretion of the Job Manager, Commissioning Manager, Project Director or Asset Owner.

## Project Information

| | | | |
|---|---|---|---|
| Project Name | | Tier of Study | |
| Project Number | | Study Date | |
| Study Type (HAZID/HAZOP | | Job Manager | |
| Study Name | | Facilitator | |

## Checklist

| Description | Proposed Action (if any) | Action By | By When | Completed (Yes or No or N/A) |
|---|---|---|---|---|
| General | | | | |
| Scope and objective of this meeting / process identified and understood? | | | | |
| Review the actions from previous Hazard Studies to confirm that agreed actions have been completed or that any changes are justified. | | | | |
| Commissioning planning completed, including: | | | | |
| • Commissioning schedule | | | | |
| • Commissioning Risk Assessment | | | | |

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| Description | Proposed Action (if any) | Action By | By When | Completed (Yes or No or N/A) |
|---|---|---|---|---|
| • Commissioning roles & responsibilities | | | | |
| • Commissioning ITP | | | | |
| • Testing ITP | | | | |
| • MW / MVAr bidding profiles identified and formally communicated to Wholesale Energy Services / GenOps | | | | |
| • Special conditions WRT Machine under test OR Station OR System OR storage levels required for successful commissioning are identified and communicated to the relevant stakeholders (Wholesale Energy Services, TNSP, AEMO, Local community) | | | | |
| Communication processes in place for commissioning | | | | |
| Acceptance criteria for the commissioning defined, agreed / approved by stakeholders, clear and unambiguous | | | | |
| Change control process for managing changes made during commissioning (e.g. technical, schedule, settings, logic, timing, equipment) in place? | | | | |
| Inspections completed after pre-commissioning completed, punchlist documented, reviewed and acceptable? | | | | |
| Compliance | | | | |

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|---|---|---|---|---|
| If a connection agreement is required, has approval from Tasnetworks been received to commence commissioning? | | | | |
| If required, has pressure vessel design certification and plant registration been completed? | | | | |
| Are there any other plant registrations that are required for commissioning? | | | | |
| Are any other Permits required (e.g. environmental)? | | | | |
| **Design & Documentation** | | | | |
| Has the plant been acceptably labelled? | | | | |
| Are the drawings marked up 'as built'? | | | | |
| Is equipment accessible? | | | | |
| Are Operating Procedures available? | | | | |
| Are Maintenance Procedures available? | | | | |
| Is O&M information available? | | | | |
| Have any new Concealed Services been recorded? | | | | |
| **Mechanical Build & Pre-commissioning** | | | | |
| ITPs completed? | | | | |
| IRSs completed? | | | | |
| Penstock hatches in place? | | | | |
| Draft tube / hatches in place? | | | | |

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|---|---|---|---|---|
| All drain valves in place and in a correct operational state? | | | | |
| All bleed valves installed and in a correct operational state? | | | | |
| All component initial lubrication requirements have been completed (e.g. grease, sump oil levels, and dashpots)? | | | | |
| Are danger points adequately guarded (e.g. rotating parts, pinch points, belts, sharp edges, hot surfaces, delicate instruments)? | | | | |
| **Piping Build & Pre-commissioning** | | | | |
| ITPs completed? | • | | | |
| Has all piping been inspected and if required pressure tested? | | | | |
| If installed, are pressure relief devices set correctly? | | | | |
| Is the piping adequately supported? | | | | |
| Is piping protected from external impact? (e.g. trucks, forklifts, dropped objects) | | | | |
| If installed, are sight glasses protected from accidental breakage? | | | | |
| Is the piping protected from exceeding the maximum allowable working pressure? | | | | |

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| Are plugs, caps or blank flange installed on all open-ended piping? | | | | |
| Are all gauges and other visual instruments installed so they are easy to read? | | | | |
| **Electrical Build & Pre-commissioning** | | | | |
| ITPs completed? | | | | |
| Earthing completed? | | | | |
| HV testing completed? | | | | |
| All links closed or otherwise documented? | | | | |
| Fire detection system functional? | | | | |
| If installed, is the VESDA system functional? | | | | |
| If installed, is the security system functional? | | | | |
| If installed, proximity probe and limit switch positioning completed? | | | | |
| Where required, are instruments calibrated and tested for accuracy? | | | | |
| **Control System & Pre-commissioning** | | | | |
| ITPs completed? | | | | |
| All hardware is operational? | | | | |
| Has the Governor been pre-commissioned and settings installed? | | | | |

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| Has the AVR been pre-commissioned and settings installed? | | | | |
| Have the protection relays been pre-commissioned and settings installed? | | | | |
| Has the vibration system been pre-commissioned and settings installed? | | | | |
| Is the correct version of any software been loaded on all devices and backed up as required? | • PLC<br>• Governor<br>• AVR<br>• Protection<br>• Vibration | | | |
| Temporary software bridges / settings been removed or otherwise documented? | • PLC<br>• Governor<br>• AVR<br>• Protection<br>• Vibration | | | |
| Are communications to governor, excitation, protection relays, RTU operational? | | | | |
| Has code functionality been checked? | | | | |
| If installed, has the Emergency shutdown systems been checked? | | | | |
| Have process variables and alarms been checked through to GenOps (ECS) | | | | |
| Have remote trips been tested as part of pre-com? | | | | |
| Have inter-trips been tested? | | | | |
| Have any isolation of trips and interlocks required during | | | | |

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| commissioning, been considered and documented in the Testing ITP? | | | | |
| **Alarms** | | | | |
| Are Operators able to hear / see alarms? | | | | |
| Are alarms raised where necessary? | | | | |
| Are different alarm statuses clearly defined? | | | | |
| Are alarm limits properly set? | | | | |
| **Resources & Roles** | | | | |
| Key roles appointed and understood?<br>• Commissioning Manager<br>• Chief of Tests<br>• Acceptance Engineers<br>Testing Team | | | | |
| Operational resources identified and availability confirmed | | | | |
| Engineering support resources identified and availability confirmed | | | | |
| Commissioning support trade resources identified and availability confirmed | | | | |
| Are specialist resource requirements organised? | | | | |
| If required, have Tasnetworks and AEMO requirements and liaison organised? | | | | |

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| Any special tools and equipment organised? | | | | |
| Critical spares organised? | | | | |
| **Buildings** | | | | |
| Are Emergency exits adequate in number and accessible? | | | | |
| Is safety signage adequate? | | | | |
| Is safety equipment adequate and accessible? | | | | |
| Is fire fighting equipment adequate and accessible? | | | | |
| Is there adequate access for Emergency Services? | | | | |
| Is lighting adequate for operations? | | | | |
| Is Emergency and exit lighting adequate? | | | | |
| Are walkways clear? | | | | |
| Are the floors free from tripping or slipping Hazards? | | | | |
| Are stairs and platforms free from tripping Hazards? | | | | |
| Have all training needs for the plant been considered? | | | | |
| Have Operators been trained? | | | | |
| Have Maintainers been trained? | | | | |
| Have any changes to the station's access / walkways been adequately | | | | |

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| communicated to all of the affected groups? | | | | |
| Environmental | | | | |
| Are Chemical and fuel storage requirements adequate? | | | | |
| Are any new waste storage and treatment requirements adequate? | | | | |
| Are bunding, draining and curbing adequate? | | | | |
| Are bunding and drip tray isolation valves closed? | | | | |
| Spill leak / clean-up support? | | | | |
| Risk Management | | | | |
| Are there likely to be abnormal conditions created by commissioning (e.g. pressures, temperatures) that need specific management? | | | | |
| Are Isolation requirements adequate? | | | | |
| Are provisions for flooding adequate? | | | | |
| Is control of electrical Hazards adequate? | | | | |
| Are there any issues with concurrent operations? | | | | |
| Are Operators trained to handle any new Emergency situations? | | | | |
| Are Operators trained in the use of any new safety equipment? | | | | |

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|---|---|---|---|---|
| Have new / novel technologies introduced new Hazards that haven't been adequately managed? | | | | |
| Have any new Chemicals or materials been introduced that create new Hazards that haven't been adequately managed? | | | | |
| Have any changes in control / protection / safe shutdown philosophies introduced new Hazards that haven't been adequately managed? | | | | |
| Are other installations not effected by the outage suitable for return to service? | | | | |
| Have Risks associated with transition of roles (e.g. over shift changes) / standby and backup Workers been considered? | | | | |
| Will anyone unnecessarily be exposed to a significant Hazard in event of possible mechanical failures, spill, fire, explosion during commissioning? | | | | |
| Have there been any modifications to equipment during build / pre-comm that could have short term Risk impacts? | | | | |
| Have there been any modifications to equipment during build / pre-comm that could have long term Risk impacts? | | | | |

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|---|---|---|---|---|
| Any Other Considerations | | | | |
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