Switching Process and Rules. (Rev 3)

Systems Operations Framework

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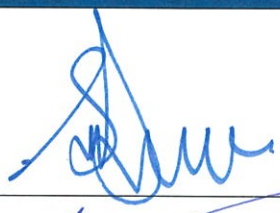
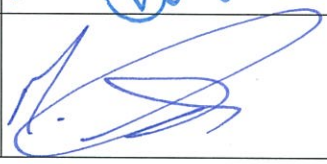
Document Owner	**Name:** Stuart Smit **Position:** Switching Operations and Process Coordinator	
Endorsed / Reviewed By	**Name:** Mick Veverka **Position:** System Operations Manager	
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Justification for Revision

REVISION NUMBER	CHANGE DETAIL	DATE REVIEWED
Rev1	Revised to improve the overall understanding of the processes contained in the document following initial deployment of the process as well as learnings from incident investigations.	Nov 2018
Rev 2	Revised to include a comprehensive reauthorisation process supported by recommendations from: - System Safety at Horizon Power Industry Report December 2018. *CS10# 11755152.* - KPMG Audit Report April 2019. - Continual improvement initiatives to support the switching and authorisation process.	April 2019
Rev 3	Revised to include Switching Level 7 authorisation and re-authorisation content, other minor grammatical changes and the inclusion of specifying when an operating key can be issued to an Authorised Person.	November 2019

STAKEHOLDERS The following positions must be consulted if an update or review is required:	***NOTIFICATION LIST*** The following positions must be notified of any authorised change:
Works Delivery Managers	Works Delivery Managers
Technical Training Coordinator	Technical Training Coordinator
Metering Services Manager	HPCC Controllers
Manager Engineering and Projects (Protection)	Field Practise Coordinator

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1. INTRODUCTION.

Switching is a key operational activity within Horizon Power and is an integral part of the daily work of many employees and contractors so that our power stations and networks can be constructed, commissioned, operated, maintained or decommissioned in a safe and reliable manner. Horizon Power requires switching to be carried out carefully and to predetermined standards to ensure the safety of Horizon Power's personnel, contractors, the public and assets is not compromised.

1.1 Purpose.

The purpose of this Switching Process and Rules document is to ensure that Horizon Power has the necessary systems and processes in place that provides for:

- Safety of our employees and contractors when accessing or operating the network;
- Maintaining reliability of supply to our customers;
- Protecting Horizon Power's assets; and
- Complying with the Electricity (Network Safety) Regulations 2015 that require prescribed activities to be undertaken safely.

This document defines the systems and processes that govern operational communication, switching technology, roles and responsibilities of those positions who support the training and authorisation of persons who are required to operate on Horizon Power Assets.

1.2 Hierarchy.

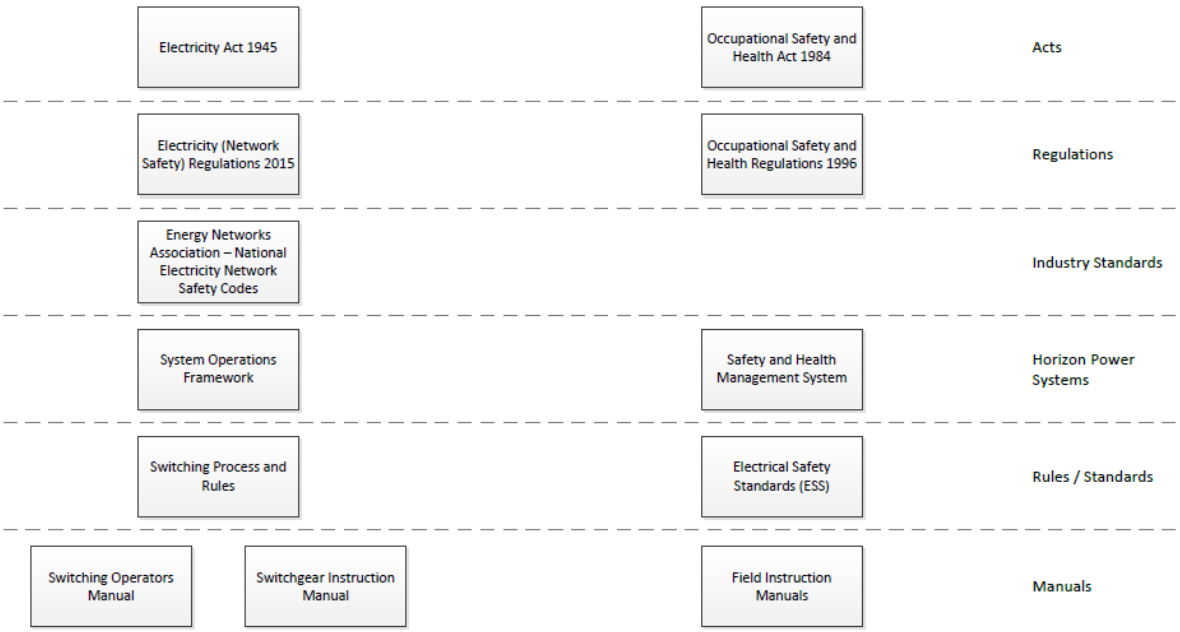
The Switching Process and Rules document operates within the following document hierarchy:

- Regulations, being the Electricity (Network Safety) Regulations 2015;
- System Operations Framework – a high level document that provides:
    - Management structure.
    - Systems.
    - Processes.
    - Rules.
    - Requirements of Horizon Power employees and contractors when operating its' systems.
    - Switching Operator's Training Manuals – documents how switching on Horizon Power's assets is performed and critical performance aspects that must be complied with.
    - Network Permit To Work System.
    - Generation Permit To Work System within Level 6.1 and 6.2 Generation Switching.

1.2.1 Switching Process and Rules includes:

- Switching Operator Authorisations, including HPCC Controllers, Authorised Persons on the Network as well as in Generation.
- Technical Training courseware that provides the basis for the training and switching fundamentals and rules to assist the operators to perform their switching safely.
- Operating Experience.
- Processes that govern how the switching function is performed.

The document hierarchy structure is shown below:



2. DEFINITIONS.

Term	Definition
Active Switching	• For a Switching Operator (Un-restricted). A demonstrated amount of program writing, program checking and programs executed as defined in this procedure. • For a Switching Operator (Restricted). A demonstrated amount of executed switching programs as defined in this procedure.
Authorisation	Duly delegated by Horizon Power with authority to perform defined and allocated tasks and duties.
Authorisation Interview	An interview conducted by the System Operations and Switching Coordinator, Formal Leader and the Switching Operator for purposes of reauthorisation. An Authorisation Interview Assessment Form must be completed with every authorisation interview.
Authorised Person	A competent person with the delegated authority to act on behalf of Horizon Power.
Cancelled	Delegation of authority (Authorisation) to act on behalf of Horizon Power removed. Reauthorisation will be possible once requirements for authorisation are met.
Competent Person	Means a person having skills, knowledge and attributes needed to safely complete a task.
Emergency Condition	A serious, unexplained and often dangerous situation requiring immediate action.
Field Switching Assessment	An assessment carried out on a Switching Operator performing switching operations. A Switching Operator Observation Form must be completed with every switching assessment performed.
Human Performance Practises	Examples being but not limited to, two way communication, peer checking, place keeping, repeat back, point and check, Stop-Think-Act- Review (STAR) and other actions to remain focused on a task.
HPCC	Horizon Power Control Centre.
HPSC	Horizon Power System Controller.
MIS	Metering Isolation Schedule.
Must	Signifies mandatory requirements of the business procedure. Deviation from the requirements is not permitted under any

	circumstance. (Non-Negotiable).
Operating Experience	Experience based learning from switching incident investigations, bulletins and other sources of information to prevent a similar undesirable event from reoccurring, or to implement or be aware of a similar good practise with a view of achieving operating excellence.
Oversight	Performing a surveillance to ensure process and actions of persons are being met to meet the requirements of Horizon Power.
Shall	Signifies mandatory requirements of the procedure. Deviation from requirements in the procedure is permitted in accordance with Management of Change Procedure for Safety.
SIS	Secondary Isolation Schedule
Should	Where the primary intent is to comply with the requirements of the business, however there may be circumstances where the requirements is or are not met, or applicable, or an alternate approach is necessary.
Suspended	Delegation of authority (Authorisation) to act on behalf of Horizon Power temporarily removed. Authorisation will be reinstated once specific conditions are met.
Switching	The operating of circuit breakers, isolators, dis-connectors, fuses or other methods of making or breaking and electrical circuit, this includes the application and removal of program earths – this does not differentiate between energised or de-energised and is the act of switching.
Switching Authority Request form	A form used by the Switching Operator, Formal Leader, HP Regional Manager, HP Technical Training Coordinator, System Operations & Switching Coordinator and the HP System Operators Manager to authorise Staff. SC10#1830662.
Switching Operator Subject Matter Expert	An authorised Switching Operator with no restrictions who is regarded as knowledgeable by his Peers and Superiors in switching matters for that switching level.
Tool Box Briefing	A discussion amongst Staff members and Contractors that focuses on safety topics related to the specific job or jobs on the day; such as work scope, workplace hazards, safe work practises, roles and responsibilities and network integrity as a minimum.
Restriction	A limiting condition placed on an authorisation.
Revocation	Delegation of authority (Authorisation) to act on behalf of Horizon Power permanently removed. Reauthorisation will not be possible.

3. PROCESSES.

3.1 Switching Operator Authorisation / Reauthorisation.

This process defines how Switching Operators are authorised to switch and how this competency is verified, measured and maintained. The process is further described in this document and basically outlined in Appendix A and Appendix B.

3.2 Switching Program Writing and Execution.

The *PowerOn Advantage Network Management Procedure CS10# 9979959* contains details on writing and execution of high voltage switching programs on Horizon Power's networks using the PowerOn system.

3.3 Network Management Patching Process.

The procedure specified below describes how the PowerOn program is maintained to represent and reflect in real time high voltage network.

See CS10# 2815526 (*PowerOn Advantage Patch Check Guidelines*) and CS10# 2816357 (*PowerOn Advantage Patch Creation Business Guidelines*).

3.4 Switching Operator's Training Manual.

The Switching Operator's Training Manual is a comprehensive set of technical guidelines and instructions provided to Switching Operators to be used when writing or executing a switching program.

- Transmission Switching Operator's Training Manual CS10# 5010609
- Distribution Switching Operator's Training Manual CS10# 5011675
- HPCC Control Room Operator Training CS10# 1398684
- Operating Experience CS10# 11824441

3.5 Reporting and Governance.

The Governance section of this document describes the governance model employed and the reporting that is provided to the business.

3.6 Incident Investigation.

Switching incidents are investigated in accordance with the Safety and Health Management System – Incident Investigation Procedure OSH-4.2-1-02 CS10# 2838057. Learning from incident investigations and other sources of experience based learning will make up what is termed Operating Experience. Operating Experience but more specifically the lessons learned from switching incidents will form part of the knowledge required for a Switching Operator's requalification.

4. OPERATIONAL SYSTEMS.

4.1 Verbal Communication.

Where verbal communication is required or necessary, it is essential that effective communication takes place between all personnel undertaking switching and maintenance activities, including the Recipient in Charge (RIC), Working Party Members, Switching Operator, Issuing Officer and the HPCC Controller.

The communications protocol is based on four principles, being:

- Clear – ensure what you say is easy to understand and not confusing;
- Concise – use proper and specific terms;
- Confirm – information must be repeated by the receiver for confirmation; and
- Complete – all of the necessary information is communicated and closed out.

Note: *Conversations between Switching Operators, HPCC Controllers, Issuing Officers, Recipient's in Charge and Recipients are to be cordial and professional in nature.*

When verbal communication occurs between HPCC Controllers and Switching Operators with regards to a switching program, all communication must clearly identify both parties and must confirm the following:

- Identification of parties by name.
- The switching program number being performed;
- The switching step being enacted;
- The name of the switching apparatus being operated;
- Any risks that either party has observed and believes the other party needs to be aware of and mitigate.

Communication between the Switching Operator, Issuing Officer and the Recipient in Charge (RIC) must clearly describe the work to be carried out isolation points, earth locations, safe work area, status of the electrical circuits, limits of responsibility and any identified risks within the allocated permit zone.

The RIC in turn must clearly confirm their understanding of the permit, its limitations and the scope of work to be performed.

Note: *All verbal communications to HPCC are recorded.*

4.2 Tablet Communication and the Management of Switching Programs.

Horizon Power uses the GE PowerOn Network Management System (NMS) software to manage its high voltage network switching operations. For network switching, Switching Operators are required to write and approve programs within this electronic system. HPCC is to execute programs within PowerOn to ensure switching correctness, operational safety and network integrity.

Switching Operators are required to execute only those steps or actions which have been instructed in terms of the switching program.

Switching and the processes that supports switching are single person accountable actions delegated to an authorised Switching Operator. In the event that there are additional Staff members available, or a risk assessment requires human performance practise support being provided to a Switching Operator in the execution of switching, this should be done where possible.

Under all circumstances when this support is being provided, the Switching Operator remains accountable in terms of all switching rules and processes as the Authorised Person.

Low voltage networks are not managed by HPCC, but managed in the regions by the Formal Leader which in most instances will be the Works Delivery Manager using Horizon Power's GIS system (Smallworld).

Generation programs are managed by the Generation Power systems Officer – Microgrids Generation outside of a SCADA system. The Service Delivery Coordinator is to ensure switching program records are kept for auditing and evidence purposes.

Citect has been provided in the regions to allow remote operation of re-closer's and substation apparatus by the Switching Operator, but only under instruction from HPCC.

4.2.1 PowerOn.

Switching programs will be executed through PowerOn mobile in those areas where communication infrastructure supports this switching technology.

This shall be achieved by HPCC communicating with field based Switching Operators to execute switching instructions and for Switching Operators to indicate when each instructed step has been completed.

A paper copy of the approved version of the switching program must be printed and in the possession of a Switching Operator executing any planned switching program. The paper copy of the program is required in the event a mobile tablet becomes unavailable during the execution of a switching program. In such a case, the paper copy of the switching program must be used by the Switching Operator to execute switching operations supported by verbal communication with HPCC.

There are areas of network within Horizon Power that may not support the required communication for tablet switching, or the business has made the decision that tablets will not be used in a particular region. In such areas switching shall be carried out by means of using an approved latest version paper copy of a switching program supported by telephonic or radio communication with HPCC.

4.2.2 Virtual Clients.

All planned switching programs will be written and approved via the PowerOn virtual client software.

4.3 Switching Classification.

Switching can be categorised into three types.

They being:

- Planned Switching;

- Unplanned (fault) Switching; and
- Emergency Switching.

4.3.1 Planned Switching.

Planned work that necessitates switching requires a double checked switching program to be submitted 24 hours in advance to HPCC. This time allows the HPCC duty controller to carry out compatibility checks on the switching program.

See Appendix C. Planned Switching Flowchart.

4.3.2 Unplanned Switching.

Unplanned switching is to be carried out as a Fault Job in PowerOn by the HPSC in consultation with Field Staff to repair faulted equipment or prevent damaging failure of equipment within the time frame allowed for a normal planned job.

See Appendix D. Unplanned Switching Flowchart.

4.3.3 Emergency Switching.

Emergency Switching is carried out to isolate a failure on the network that threatens the safety of people, property, environment or HP's assets. Emergency switching shall be done in consultation and agreement between HPCC and the field SWOP. All switching shall be accurately recorded on the PowerOn Fault Job.

The emergency should be entered as an incident in Cintellate by the WDC. The report should include any injury to person/s or damage to Horizon Power's assets.

See Appendix E. Emergency Switching Flowchart.

5. ROLES AND RESPONSIBILITIES.

This section describes the roles and responsibilities of persons within Horizon Power when performing switching activities.

All workers are to adhere to the following when performing switching activities:

- OSH-1-1-03 Principle 1 – Leadership and Accountability. CS10 # 2610702
- OSH-3.1.2-1-01 Responsibilities and Accountabilities Procedure. CS10 # 3033236
- Horizon Power Safety Non-negotiables. CS10 # 2721189

5.1 Switching Operator.

Functional responsibilities are a critical aspect to a well-functioning switching and permit to work process in any utility. Horizon Power utilises field-based personnel to fulfil the role of the Switching Operator in support of this across its service areas.

Human performance practises must be used to support operations when staffing levels allow this or as mitigation to limit risk. This support will in no way diminish or relieve a Switching Operator from his responsibilities as the Authorised Person while executing his duties.

The responsibilities being:

5.1.1 Network.

A Network Switching Operator is responsible for:

- Physical switching on primary network apparatus or power station assets for reconfiguration, isolation and/or earthing as well as applying the required tagging;
- All switching activities are sufficiently risk-assed prior, during and after the switching activities with the objective of minimising risk of injury and damage to equipment as far as reasonably possible to meet ALARP principles;
- Using the correct PPE for the switching task;
- Ensuring their switching authorisation is maintained and current at all times with active switching to maintain skills;
- Ensuring switching is performed safely, within their competency and only within the levels that they are authorised to ensure alignment with Horizon Power's safety non negotiables;
- Any remote switching operations performed via Citect must be performed by an authorised SWOP with the appropriate switching level;
- Adherence to the Horizon Power Switching Process and Rules along with associated procedures;
- Maintaining compliance to Horizon Power's Electrical Safety Standards and Generation Permit to Work Standards whilst undertaking switching activities;
- Carry out required initial inspection to ensure that the apparatus being switched is in a safe condition prior to it being operated;
- Verifying after switching that the apparatus switched on or energised is in an operable condition;

- Ensuring where practicable, that all switching operations are to be performed remotely where the capability exists in preference to local switching;
- Provide direct supervision of an In Training Switching Operator as required;
- Liaising with the Recipient in Charge (RIC) for the issuing and cancellation of work permits;
- Coaching and mentoring of staff in switching and safe operating practises; and
- Responsible for the submission of a Continuous Improvement Form where deficiencies are found or improvements have been identified.

5.1.2 Protection or Metering Secondary Systems.

A Protection or Metering Switching Operator is responsible for:

- Physical disconnection and reconnection of protection or metering devices, wiring, links, fuses and applying the required tags on associated Horizon Power equipment.
- All switching activities are sufficiently risk-assed prior, during and after the switching activities with the objective of minimising risk of injury and damage to equipment as far as reasonably possible to meet ALARP principles;
- Using the correct PPE for all tasks;
- Ensuring their switching authorisation is maintained and current at all times with active switching to maintain skills;
- Ensuring switching is performed safely, within their competency and only within the levels that they are authorised to ensure alignment with Horizon Power's safety non negotiables;
- Adherence to the Horizon Power Switching Process and Rules along with associated procedures;
- Maintaining compliance to Horizon Power's Electrical Safety Standards and Generation Permit to Work Standards whilst undertaking switching activities;
- Liaising with the Recipient in Charge (RIC) for the issuing and cancellation of work permits;
- Coaching and mentoring of staff in switching and safe operating practises; and
- Responsible for the submission of a Continuous Improvement Form where deficiencies are found or improvements have been identified.

Note: Switching Operators who are authorised on protection or metering systems are not authorised for the isolation of any primary apparatus or the issue of any permits on primary apparatus.

5.1.3 Network Program Writer.

The Switching Operator is to write switching programs that:

- Identify adequate and effective isolations as per the scope of work in accordance with permit to work rules and requirements;
- At the stage of writing switching programmes that all switching activities are sufficiently risk-assed prior to the switching activities with the objective of minimising risk of injury and damage to equipment as far as reasonably possible to meet ALARP principles;
- Are within the switching levels that the Program Writer is authorised and deemed competent in;
- Are within the capabilities of the equipment being operated;
- Do not overload plant;
- Do not place the Switching Operator, Staff or a member of the public at risk;
- Ensure remote switching of apparatus is performed in preference to local switching; and

Note: Should the Program Writer be In Training (L) or have a restricted authorisation (P), a fully authorised Switching Operator (X) must review the program as the Writer under all occasions.

5.1.4 Network Program Approver.

The Switching Operator that is approving the switching program needs to:

- Verify that the isolations identified are adequate and effective as per the scope of work in accordance with permit to work rules and requirements;
- At the stage of approving the switching programme, that all proposed switching activities are sufficiently risk-assed prior to the switching activities with the objective of minimising risk of injury and damage to equipment as far as reasonably possible to meet ALARP principles;
- Perform a cross check of the switching program written by the Program Writer;
- Be authorised to switch for the levels required for the program they are checking;
- Be fully conversant with the switching program they are reviewing; and
- Approve the switching program for submission to the Horizon Power Control Centre (HPCC).

Note:

1). A Program Approver cannot be the Program Writer.

2). A Switching Operator that is In Training (L) or has a restricted authorisation (P), cannot check a switching program.

3). No program is to be submitted to HPCC unless two fully authorised Switching Operators have reviewed and checked it, this being a Program Writer and a Program Approver (second check).

3). Unplanned switching after faults, the HPSC will compile a switching program in collaboration with the Switching Operator attending to the fault. If the Switching Operator is restricted in such circumstances, then an additional Approver is required, preferably based within the Region where the switching is to be performed.

5.1.5 Generation.

The Switching Operator on a generation site is responsible for:

- Physical switching at a power station assets for reconfiguration, isolation and / or earthing as well as applying the required tagging;
- Effecting mechanical isolations, applying tags on equipment and apparatus and the issue of permits in terms of the generation permit to work system.
- All switching activities are sufficiently risk-assed prior, during and after the switching activities with the objective of minimising risk of injury and damage to equipment as far as reasonably possible to meet ALARP principles;
- Using the correct PPE for the switching task;
- Ensuring their switching authorisation is maintained and current at all times, with active switching to maintain skills;
- Ensuring switching is performed safely, within their competency and only within the levels that they are authorised to ensure alignment with Horizon Power's safety non negotiables;
- Adherence to the Horizon Power Switching Process and Rules along with associated procedures;
- Maintaining compliance to Horizon Power's Electrical Safety Standards and Generation Permit to Work Standards whilst undertaking switching activities;
- Carry out required initial inspection to ensure that the apparatus being switched is in a safe condition to be switched;
- Verifying after switching that the apparatus switched on or energised is in an operable condition;
- Ensuring where practicable, that all switching operations are to be performed remotely where the capability exists in preference to local switching;
- Provide direct supervision of an In Training Switching Operator as required;
- Liaising with the Recipient in Charge (RIC) for the issuing and cancellation of work permits;
- Coaching and mentoring of staff in switching and safe operating practises; and
- Responsible for the submission of a Continuous Improvement Form where deficiencies are found or improvements have been identified.

5.2 Formal Leader.

The Formal Leader is responsible for:

- Assessing Switching Operators to ensure they maintain and have the minimum desired exposure to equipment in the area where he/she will perform switching operations;

- Ensure that Switching Operators are knowledgeable on local policies and procedures;
- Ensuring that Switching Operators have all the required safety training;
- Ensuring that Switching Operators have the correct attitude toward safety;
- Ensuring that all Switching Operators feel comfortable to execute there switching functions and duties;
- Ensuring that all Switching Operators under their designated responsibility are competent and authorised to perform switching functions;
- Providing each Switching Operator valid switching exposure on all types of apparatus to keep skills at a proficient level;
- Ensuring that Tool Box Briefings are held to discuss the days planned switching activities and work with all involved Staff members and Contractors.
- Ensuring that Switching Operators keep switching evidence for requalification purpose;
- Sharing Operating Experience Bulletins as and when received;
- Upon receiving instruction to suspend/cancel/revoke the authorisation of a Switching Operator from the System Operations Manager, withdraw the switching card from the individual concerned;
- Inform the Switching Operator in writing of their suspension or revocation as a Switching Operator; and
- Identify authorised Switching Operators who can provide on job coaching and mentoring of Switching Operators.

5.3 Regional Manager.

The Regional Manager is responsible for:

- Endorsing Switching Operator Authorisation applications to acknowledge their consent for Switching Operators to switch on Horizon Power's network/power station assets, subject to passing the prerequisite technical and practical skills assessments;
- Identify authorised Switching Operators who can provide on job coaching, supervision and ongoing mentoring of Switching Operators requiring training;
- Monitoring and addressing the performance of their Switching Operators;
- Sharing Operating Experience Bulletins as and when received;
- Ensuring any switching incidents are reported, fully investigated and the recommendations implemented; and
- Ensure that suspended / cancelled / revoked authorisations of a staff member or contractor is communicated in writing to the individual concerned.

5.4 HPCC Controller.

The HPCC Controller is a designated Switching Operator with specific roles performed within the Horizon Power Control Centre. The Controller is responsible for overseeing switching activities on Horizon Power's electrical networks including:

- Oversee delivery of switching programs on the network;
- Raising and writing fault job programs to address issues as they arise;
- Perform compatibility checks prior to the commencement of all switching programs to ensure no conflicting programs are occurring. At the stage of review of switching programmes that all switching steps are sufficiently risk-assed prior to the switching activities with the objective of minimising risk of injury and damage to equipment as far as reasonably possible to meet ALARP principles;
- Control the running of switching programs to ensure compatibility with prevailing network conditions;
- Performing remote control switching on devices capable of being remotely controlled;
- Cancelling programs or requesting permit cancellation, as required where:
    - Changes occur to the scope of the work;
    - An unplanned event affects the safety and health of Switching Operators, the work party or the public; and
    - An unplanned event has an adverse impact on network security.
- Issuing and recording work permits to ensure all permits are recorded and responsible for compatibility of multiple work permits.

5.5 System Operations and Switching Coordinator.

The Switching Process Coordinator is responsible for:

- Providing an oversight function to ensure that field assessments for authorisation are carried out within the Switching Process Rules;
- Collecting supporting documentation for the processing and issuing of authorisations and or restrictions of Switching Operators working on Horizon Power's electrical networks;
- Mentoring and coaching of all personnel within the switching process with the view to improve safe switching practices and the effective risk assessment of switching activities;
- Recommending the issue, Suspension, Cancellation or Revocation of a Switching Operator's authorisation;
- Research information as applicable and provide information to Horizon Power authorised Switching Operators to ensure that switching activities are undertaken safely and in line with good industry practice;
- Championing of continuous improvement in all activities related to the process of safe switching operations;
- Assist with switching incident investigations as required;
- Regularly reviewing the switching process for improvements;
- Compile and distribute Operating Bulletins as Operating Experience;
- Audit the switching process to monitor compliance;
- Monitor switching delivery across Horizon Power; and
- Management of documentation relevant to switching including:

- Horizon Power Switching Process and Rules;
- Switching Operators Training Manual;
- Switchgear Instruction Manual; and
- Operating Experience.

5.6 System Operations Manager.

The System Operations Manager is responsible for:

- Final approval for authorisation of Switching Operators on Horizon Power networks;
- Suspending, cancelling and revoking authorisations of Switching Operators on the Horizon Power Network;
- The issue of temporary switching authorisations in cases of emergency to Competent Persons.
- Provision of monthly reports to the Executive and Management teams;
- Reviewing the Switching Process and implementing improvements as required;
- Ensuring only authorised Switching Operators perform switching programs on Horizon Power's assets; and
- Ensuring that the number of planned switching programs per shift do not exceed HPCC's capacity to fulfil its role.

6. GOVERNANCE.

6.1 Management Review.

The Switching Process and Rules will follow continual improvement using the ADRI methodology of:

6.1.1 Approach.

The Switching Process and Rules establishes and implements a fit for purpose switching management system by:

- Technical training courseware and a robust authorisations process;
- The reauthorisation of Switching Operators based on active switching, switching theory and operating experience learning;
- Switching Process and Rules and associated manuals;
- Open reporting and visibility throughout the business;
- Coaching/mentoring of all Switching Operators;
- Field audits of Switching Operators; and
- Varied levels of authorisation.

6.1.2 Deploy.

All persons identified in this process carryout their identified duties and functions as described.

All persons who are required to switch on the Horizon Power Network are trained either by Horizon Power or by a Registered Training Organisation (RTO) and are subject to a theory and practical assessment. Further supervised on job training will thereafter be performed

which will include a field assessment to determine their competence to switch on Horizon Power assets.

Active switching will conditionally replace the need for a field switching assessment for requalification purposes. The conditions which pertain to this are further defined in section 7.9.2 Active Switching.

6.1.3 Review.

The System Operations and Switching Process Coordinator will provide oversight of the switching function within Horizon Power.

Monthly reports will be provided to the Executive and Management teams that will include lead and lag indicators such as:

- Number of switching programs performed for the period;
- Details and available investigation reports of any switching incidents that may have occurred during the period;
- Number of audits undertaken for the month; and
- Reports to the Formal Leaders on the outcome of any field observations.

6.1.4 Improve.

Continual improvement for updating of the Switching Process and Rules will be undertaken based on identified improvements or needs of the business.

To facilitate continuous improvement all persons involved with switching activities will be responsible for the submission of a Continuous Improvement Form (CS10#10907435) where deficiencies are found or improvements have been identified.

The Switching Process Coordinator will be responsible for implementation of improvements to the process and engaging with the relevant stakeholders.

6.2 Compliance, Auditing and Oversight.

Compliance to the Switching Process and Rules is the responsibility of all Switching Operators. Some roles within Horizon Power have additional requirements to assist with this.

6.2.1 System Operations and Switching Coordinator.

Oversight shall be achieved by:

- Performing on the job audits of switching operations;
- Review of permits, risk assessment documents and switching programs;
- Review of authorisation database;
- Review of the theoretic and practical training sessions and learning material; and
- Review the adequacy and correctness of supporting paperwork for authorisation.

6.2.2 Formal Leaders:

Compliance to the switching process and rules shall be provided by:

- Before signing a Switching Authority Request form, review VETtrack to ensure that the individual is suitably trained and experienced for the role in terms of meeting Rule 10 of the Non-negotiables;
- Perform work site compliance reviews to ensure that switching activities are only undertaken by authorised Switching Operators at their level of authorisation;
- Maintaining oversight to ensure that principles contained in the related permit to work standards and switching manuals are followed by performing permit and switching reviews;
- Sharing learning from bulletins in support of operating experience in a bid to achieve operating excellence;
- Putting mechanisms in place to ensure that Switching Operators maintain their competency and authorisation;
- Review VEtrack and the Switching Dashboard from time to time to determine when Switching Operators authorisations will expire; and
- Participate in authorisation interviews.

6.2.3 Tool Box Sessions.

Tool box sessions are primarily an informal opportunity to focus on the safety of Staff, Contractors, apparatus, equipment and maintaining network integrity.

Guiding principles for effective tool box sessions.

- Involve all members of the work team during discussions. *This will ensure that all members of the work party feel involved and committed.*
- Keep the briefing short and to the point. *If more detailed information is required, provide this in a hand out for later reference.*
- Use Operating Experience. Make reference to incidents and the learning from these incidents to stress a point. *Incidents can be something negative so focus on the positive aspect of being in a position to prevent a similar situation from occurring.*
- Make use of drawings, diagrams, photos and geospatial positioning programs to indicate technical information and requirements for the day's work as far as possible.
- Keep the discussion hands on and practical. *The expert for doing the job is in the room and no one likes to feel they are being lectured too.*
- Avoid complacency. *It's a well-known that incidents often occur with the most experienced Staff because of compliancy.*
- Discuss roles and responsibilities making sure all those involved understand what their involvement will be on the day.
- Discuss human performance and limiting factors that may influence the day's activities. *Examples being excessive heat, distractions, working alone, complex tasks and the need to remain focused during critical times.*

6.3 Investigations.

Switching is considered hazardous and as such any serious switching related incident is to be investigated in accordance with the Incident Management procedure detailed within The Zone. See procedure OSH-4.2-1-01.

Any incident reported in Cintellate as being switching related will be assessed by the Switching Process Coordinator. If the risk is assessed as High by the System Operations and Switching Coordinator the incident investigation will be tasked to a person within the business who is independent of the work group/location of where the incident occurred.

The purpose of investigations is to compile a report that:

- Determines a root cause of the event and to provide a regulatory response within the prescribed time frames;
- Ensure that a learning outcome is provided as Operational Experience to all stakeholders in the business to a). Improve the performance of switching operations, b). Ensure corrective actions are identified to prevention reoccurrence, c). Capture relevant learning for switching requalification process.

Any Switching Operator or Controller involved in a switching incident shall have their authorisation reviewed with an initial assessment made by the System Operations and Switching Coordinator to determine their respective contribution to the incident. From this initial assessment a decision will be made to suspend an individual's authorisation or not pending the outcome from the investigation.

The suspension of an individual's authorisation is not a punitive measure, but a measure to ensure the safety of the individual concerned, safety of staff, public or that of network integrity, until sufficient information is available from the investigation to make a final determination.

Incidents shall be risk assessed.

When assessing the risk of an incident, the following shall be considered to determine a risk rating:

- High – An incident involving a safety breach e.g. applying earths to live network, unauthorised switching, energising wrong section of the network, issuing EAP with live network in permit zone, working without a permit;
- Medium – An incident affecting the reliability of supply to a Customer e.g. causing avoidable loss of customer supply; and
- Low – An incident caused by administrative or procedural error. E.g. Program writing error identified before or during switching operations.

The following will also be a consideration during the investigation with regards to any incident investigated.

- Severity of the incident;
- Type of incident (Safety, Continuity of supply, Administrative);and
- Any previous incidents from those involved.

Negligence or deliberately not following switching rules and or safety policies shall result in disciplinary action against all persons involved. The Fair and Just Principals will apply in all instances. See CS10 3190849.

The table below will be used as an additional tool with regards to repeat events / incidents.

		Incident Type		
		Low Risk	**Medium**	**High**
Incident Number	**1**	Formal notice	Switching level restriction applied.	Switching authority cancelled.
	2	Formal notice	Switching authority cancelled.	Switching authority revoked.
	3	Switching level restriction applied	Switching authority revoked.	
	4	Switching authority suspended or cancelled.		
	5	Switching authority revoked.		

6.4 Issue of Operating Keys.

- Operating keys will be issued to Switching Operators only once they have been found competent to perform unsupervised switching (P).
- Formal Leaders must carry out key audits once every six months to ensure effective control of keys that have been issued to Authorised Persons.
- Employees and Contractors must return operating keys to Horizon Power on completion of their contract or employment period.
- Operating keys that are lost or misplaced shall be reported in Cintellate for investigation.

7. SWITCHING OPERATOR AUTHORISATIONS.

7.1 Provision of Training and Authorisation.

- Technical training courses will be delivered through a Registered Training Organisation (RTO) for initial switching authorisations;
- Practical on job training in support of initial training will be carried out by Horizon Power;
- Horizon Power will provide all theoretical training material as well as the assessment tool for requalification of Switching Operators;
- The technical competence of Protection and Metering Technicians will be assessed by a subject matter expert and if adequate, recognised as practical training required for switching within the switching process; and
- Authorisation will be achieved by successfully meeting all requirements as set out in this document with a signed Switching Authority Request Form submitted to the System Operating Manager for approval.

Appendix A contains the process for the reauthorisation of Switching Operators.

Appendix B contains the process for new Switching Operators with no previous experience.

7.2 Switching Operator Entry Qualifications.

Switching Operators will need to meet minimum qualification requirements for the position and then follow a pathway of gaining incremental knowledge, training and experience for authorisation.

7.2.1 Entry Qualifications.

Distribution & Transmission Switching - Level 1 to 4.

- Certificate III ESI Distribution Overhead (Linesman) or Australian Trade qualification equivalent;
- Certificate III ESI Distribution Cable Jointing (Cable Jointer) or Australian Trade qualification equivalent; and
- Electrician (WA Licenced Electrical Installer/Australian qualified Electrical Fitter).
- Previous industry related experience and training

Protection Secondary Systems – Level 5.1.

- Electrician (WA Licenced Electrical Installer/Australian qualified Electrical Fitter); and
- Engineers Australia Recognised Electrical Engineering qualification.
- Previous industry related experience and training.

Metering Secondary Systems – 5.2.

- Electrician WA Licenced Electrical; and
- Engineers Australia Recognised Electrical Engineering qualification.
- Previous industry related experience and training.

Generation - Levels 6.1 and 6.2.

- Electrician (WA Licenced Electrical Installer/Australian qualified Electrical Fitter); or
- Australian Mechanical Trade qualification + HP approval.
- Linesman Trade qualification.
- Previous industry related experience and training.

HPCC Controller – Level 7.

- Certificate III ESI Distribution Overhead (Linesman) or Australian Trade qualification equivalent;
- Certificate III ESI Distribution Cable Jointing (Cable Jointer) or Australian Trade qualification equivalent; and
- Electrician (WA Licenced Electrical Installer/Australian qualified Electrical Fitter).
- Previous industry related experience and training.

7.3 Recognition of Prior Learning (RPL) and Switching Experience.

Where a new Switching Operator requires initial authorisation by Horizon Power and can demonstrate similar prior switching experience and training, a process for recognition of prior switching experience and learning can be considered. See Recognition of Prior Learning form CS10 10598708.

An initial assessment of the candidate's experience will be undertaken by the Formal Leader who will be responsible for the verification of any switching experience with the assistance of the Technical Training Coordinator.

7.4 Switching Authorisation Specific to Area.

Switching Operator authorisation will be limited to a geographic area / areas. This will necessitate that Switching Operators have relevant local knowledge on the respective network before being authorised.

In the event a Switching Operator is required to switch in a different geographical area for which he is not authorised, the Switching Operator will first need to be assessed by the Formal Leader for that area where switching will be carried out.

Once the assessment has been completed and the Formal Leader is satisfied that the Switching Operator is knowledgeable on the local network and relevant local procedures, a Switching Authority Request Form must be completed detailing the additional geographical area and sent to the System Operations and Switching Coordinator for processing.

The additional area will then be added to the Switching Operator authorisation profile once approved by the System Operating Manager.

If active switching is not maintained for a specific geographical area, it will lapse when the Switching Operator undergoes his reauthorisation as an Authorised Person.

7.5 Authorisation Date.

Switching authorisations are valid for two years. The date of authorisation will be set as follows:

- For an initial authorisation; the date when the Switching Operator was found competent at the field switching assessment;
- Switching level restriction being removed within an existing authorisation period; the date when the Switching Operator was found competent for his existing authorisation period;
- Switching level upgrade / change within an existing authorisation period; the date when the Switching Operator was found competent for his existing authorisation period; and
- For requalification purposes; the date when the Switching Operator was found competent at the reauthorisation interview.

7.6 Lapsed Switching Authority.

In the event that a Switching Operator authorisation has lapsed for a period of six months or longer, or have had their Switching Authority suspended / cancelled, the Switching Operator must follow the initial training and authorisation process for reauthorisation.

Under such circumstances the following can be considered on a case by case basis:

- The period of classroom instruction can be waivered with a theoretical assessment being done only.

Their Wages Competency Level may be adjusted accordingly.

7.7 Authorisation Scope, Restrictions and Exclusions.

The following information shall be recorded for all authorisations as applicable.

Name of Authorised Person.

Employee Number.

Employer Name.

Authorisation Date.

Authorisation Date of Expiry.

Geographic area of Authorisation.

Authorisation Levels. Level 1, 2, 3, 4, 5.1, 5.2, 6.1, 6.2 & 7.

Limitations.

- In Training Switching (L).

- Switching under Supervision only (P).
- Protection Secondary Systems Complex.
- Protection Secondary Systems Non-complex.
- Metering Secondary Systems.

7.8 Insufficient Number of Written Programs.

A Switching Operator that has not written or checked 6 programs prior to their authorisation expiring, but can demonstrate that they have executed sufficient switching programs will have their authorisation level reduced to "Restricted".

7.9 Switching Operator Levels.

Horizon Power's Switching Operator levels are:

Level 1	Fault Response Switching
Level 2	Distribution Switching
Level 3	Substation Switching
Level 4	Transmission Switching
Level 5.1	Protection Secondary Systems
Level 5.2	Metering Secondary Systems
Level 6.1	LV Generation Switching
Level 6.2	HV Generation Switching
Level 7	Control Centre

7.9.1 Level 1 Fault Response Switching.

Fault Response Switching Level allows isolation of already de-energised apparatus on Horizon Power's network (includes LV and HV overhead and underground network).

Isolation only switching will be carried out for the purpose of making the site safe and will be performed under direct instruction from an authorised Horizon Power Switching Operator or HPCC Controller.

Local switching operations will only be undertaken when the apparatus is proven to be de-energised.

7.9.2 Level 2 Distribution Switching.

Distribution Switching Level (Switching Level 2) allows switching operations on all primary distribution circuits (includes LV and HV overhead and underground equipment) on Horizon

Power's network, and includes the enabling/disabling of the auto reclose and sensitive earth fault (SEF) functionality on the substation feeder circuit protection, but excludes operation of the feeder circuit breaker earth switch.

7.9.3 Level 3 Substation Switching.

Substation Switching Level (Switching Level 3) allows switching operations on all primary circuits located in Horizon Power's substations up to and including 33kV equipment. For clarity, this does not include Transmission equipment.

7.9.4 Level 4 Transmission Switching.

Transmission Switching allows switching operations on all primary circuits (includes primary apparatus and related secondary apparatus) located within a zone substation, terminal station and transmission lines on Horizon Power's Pilbara Grid network.

Note: *A person holding a Level 4 switching qualification is deemed to hold a Level 3 authorisation.*

7.9.5 Level 5.1 Protection Secondary Systems.

Protection Secondary Systems authorisation (Switching Level 5.1) allows isolation of protection schemes and their interfaces on Horizon Power assets which may be located within a substation, terminal station or generation facility and the issue of secondary protection permits. This level of authorisation does not provide for the switching of primary assets.

Note that secondary systems authorisation is sub-categorised into non-complex and complex isolations. This will be stipulated on the authorisation of the Switching Operator.

7.9.6 Level 5.2 Metering Secondary System.

Metering Secondary Systems authorisation (Switching Level 5.2) allows isolation of metering schemes and their interfaces on Horizon Power High Voltage (HV) assets, which may be located within a substation, terminal station or a generation facility, or within a Customers installation and the issue of secondary metering permits. This level of authorisation does not provide for the switching of primary assets.

7.9.7 Level 6.1 LV Generation Switching.

Generation Switching Level (Switching Level 6.1) allows switching operations on all circuits associated with power station generators and auxiliary equipment and includes mechanical isolations, the issue and receipt of associated permits in Horizon Power owned power stations where the generator terminal voltage is less than 1000V.

This level allows the Switching Operator to operate the feeder circuit breakers under instruction from HPCC or a competent Switching Operator.

7.9.8 Level 6.2 HV Generation Switching.

Generation Switching Level (Switching Level 6.2) allows switching operations on all circuits associated with power station generators and auxiliary equipment in Horizon Power owned power stations where the generator terminal voltage is greater than 1000V.

This level allows the Switching Operator to operate the feeder circuit breakers under instruction from HPCC or a competent Switching Operator.

7.9.9 Level 7 Control Centre.

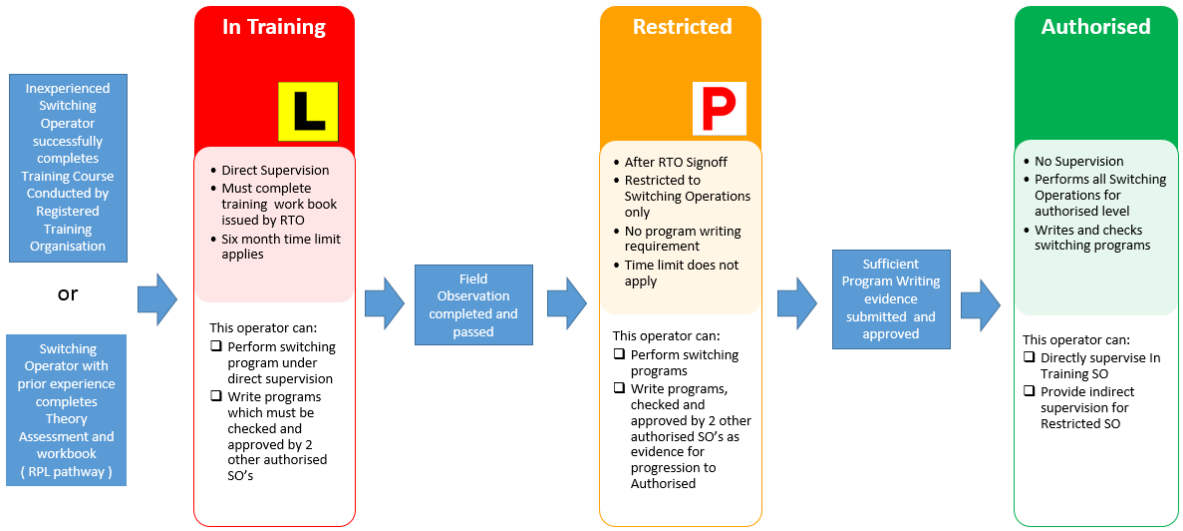
Control Centre (Switching Level 7) allows remote switching of primary equipment from HPCC. Switching will be undertaken as required for normal power system operation and also to facilitate safe access to Horizon Power's networks.

This level is also responsible for the coordination of network switching activities and electronically recording of network work permits.

7.10 Switching Level Limitations.

To ensure Switching Operators are competent in their task, Horizon Power has 7 levels of switching authorisation and a further 2 limitations within each level. Switching Operators are authorised for specific level(s) and can only switch within the level(s) they have been deemed competent in.

The normal Switching Operator authorisation level will be that of a fully authorised Authorised Switching Operator. This shall be indicated by an X on the switching resources tool dash board. However, two levels of restrictions may apply. One being "In Training" (L) and the other "Restricted" (P). These two limitations are a passageway for obtaining further training and experience to become a fully authorised Switching Operator for switching levels 1 to 4.



7.10.1 In Training Switching Operator (L).

An "In Training Switching Operator" is obligated to complete field practical training requirements with a view of completing these within a six month period after attending the theoretical training course. A prolonged in training period dilutes theoretical knowledge gained and further places manpower constraints at work site.

The In Training switching limitation provides for a mentored and supervised pathway for future switching level progression to full authorisation.

Limitations on this authorisation are:

- Can only perform switching activities in the presents and under direct supervision of a fully authorised Switching Operator;
- Can write switching programs but it shall be reviewed by an authorised Switching Operator and approved by another separate authorised Switching Operator; and
- May not supervise another In Training Switching Operator.

Note: As this is an authorisation that permits supervised access to the Horizon Power network; it will necessitate that a Switching Authority Request form to be processed once the candidate has completed his theoretical classroom instruction at a Recognised Training Authority before being permitted to perform any switching under supervision. This authorisation will be indicated by the letter "L" adjacent to the level of switching competence once attained.

7.10.2 Restricted Switching Operator (P).

Limitations placed on Restricted Switching Operators are designed to cater for:

- Scenarios where the opportunity for program writing is limited, or to accommodate Horizon Power's resources plan for a role that is only required to execute a switching program and not write one;
- For a Switching Operator who has not provided sufficient evidence of program writing skills to be deemed competent in fulfilling the complete requirements of an Authorised Switching Operator, but has successfully passed the 'Field Observation' and is deemed competent to execute an approved switching program;
- There is no time limits placed on a Restricted Switching Operator, however the individual should use every opportunity to write switching programs in order to develop their program writing skills and collect evidence for progression to being an unrestricted Authorised Switching Operator;
- Switching programs written by Restricted Switching Operators shall be reviewed and approved by two separate authorised Switching Operators;
- Restricted Switching Operators may not check / approve switching programs; and
- Restricted Switching Operators may not supervise another In Training or another Restricted Switching Operator in switching operations.

Note: As this is an authorisation that permits unsupervised access on the Horizon Power network; it will necessitate that a Switching Authority Request form be processed once the Switching Operator has completed his in service training and completed a Field Switching Assessment. This authorisation will be indicated by the letter "P" adjacent to the level of switching competence once attained.

7.11 Initial Network Authorisation Requirements.

To be authorised on the Distribution and Transmission networks in Horizon Power, a Candidate will need to complete switching related courses, obtain practical on job training and pass a field switching assessment.

The requirements for authorisation are:

- Network Permit To Work;
- Substation Entry;
- Successful completion of the Technical Training Course for the required switching level, at which point they will be placed with the 'L' restriction for that level (e.g. 2L, 3L or 4L);
- Successfully complete PowerOn training to write switching programs;
- Successfully complete PowerOn tablet training to ensure proficiency in using the tablet to execute switching programs.
- On job practical training and learning;
- Undertake switching under direct supervision by an authorised Switching Operator and write switching programs for review and approval by two authorised Switching Operators;
- Knowledgeable of all relevant local procedures and policies;
- Elementary knowledge of the local network topology;
- An appreciation of any unique network configurations unique to the area;
- Can recall important lessons learned from previous switching incidents in Horizon Power for requalification training;
- Has appreciation of inherent risks when working or operating on that section of the Horizon Power Network;
- Pass a Field Observation supervised by a Switching Operator and observed by the System Operations and Switching Process Coordinator. Once this has been successfully completed, the individual will have their 'L' restriction removed and replaced with the 'P' restriction;
- Upon receipt of the 'P' restriction, the individual will be allowed to execute a switching program without supervision;
- Once a Switching Operator has compiled enough program writing evidence and supported by the individual's formal leader with a signed Switching Authority Request form, submit the programs to the System Operations and Switching Process Coordinator (SOSC) for review. If the SOSC believes the programs are to the required standard, the Switching Operator will have their 'P' restriction lifted. The Authorised Switching Operator will be advised on the outcome of this assessment.

  Note: Recognition of prior learning (RPL) can be used where necessary experience exists. See Recognition of Prior Learning CS10 10598708.

Note: Besides Network Permit To Work training, some Switching Operators may also be required to undertake Generation Permit To Work training.

All training and switching authorisations that are issued will be recorded in Horizon Power's Training and Learning Management System (VETtrak).

Appendix B contains the authorisation process for new Switching Operators with no previous experience.

7.12 Initial Protection and Metering Authorisation Requirements.

To be authorised on the Horizon Power network, a Candidate will need to have formal technical qualifications as a Protection or a Metering Switching Operator.

This shall be supported with the following:

- Technical assessment carried out by a Subject Matter Expert;
- Six Secondary Isolation Schedules;
- Substation Entry;
- Generation Induction Training; and
- Network Permit To Work.

7.13 Initial Generation Authorisation Requirements.

To be authorised for Horizon Power generation sites, a Candidate will need to complete switching related courses, obtain practical on job training and pass a field switching assessment.

- Generation Induction Training.
- Generation 6.1 training.
- Generation 6.2 training. (Applicable to HV stations only).

7.14 Initial HPCC Controller Authorisation Requirements.

To be authorised as a Horizon Power Controller, the following training will need to have been completed.

- PowerOn switching program writing.
- PowerOn tablet switching.
- Network Permit To Work Training.
- Generation Induction.
- Substation Entry Training.
- On the-Job Training Workbook (CS10#5559974).
- Switching Operations Level 7. (Written theory assessment).

7.15 Network Requirements for Re-Authorisation.

All attempts must be made to ensure that all training course and assessments are redone before the Switching Operator authorisation expires.

The Formal Leader shall ensure that the Switching Operator has sufficient evidence for the switching level indicated on the Switching Authority Request for requalification before submitting it to the respective Regional Manager.

Formal Leaders and Switching Operators must make use of VETtrack and the Switching Resources Tool to review authorisation dates of expiry.

The resources tool can be found on Powerlink. See: Powerlink>Safety>Dashboards and Safety Reports> Switching Sources Tool.

- Appendix A contains the authorisation process for the reauthorisation of Switching Operators; and

Formal Leaders must play an active role of ensuring that Switching Operators maintain active switching experience for all their levels of authorisation.

Switching Operators must keep copies of all switching schedules, permits and risk assessment as active switching evidence for requalification purposes.

Prior to the expiry of their authorisation, the Switching Operator is required to submit a Switching Authority Request to their Formal Leader for approval.

Before signing the Switching Authority Request form, the Formal Leader must have a one on one discussion with the Switching Operator to ensure the Operator has met the following requirements for reauthorisation:

7.15.1 Network Theoretical Assessment for Re-Authorisation.

Has completed the required theoretical switching training assessments.

Theoretical training will cover:

- Substation Entry practises;
- Network Permit to Work; and
- Network Switching Theory & Operating Experience.

Switching Operators must stay abreast with changes to relevant procedures and lessons learned from past incidents as Operating Experience learning.

This will be achieved by reviewing:

- Bulletins;
- Cintelate;
- Switching Operator Manuals

- Field Practise Manuals; and
- Operating Experience procedure. See CS10 # 11824441.

7.15.2 Network Active Switching for Re-Authorisation.

Active switching will conditionally replace the need for a practical field switching assessment if Switching Operators can demonstrate sufficient active switching prior to their authorisation expiring.

- For an unrestricted authorisation, sufficient switching will mean the writing or checking and execution of six switching programs within the previous 2 year period. Two of these switching programs must be at the highest switching level attained by the Switching Operator;
- For a restricted authorisation, sufficient switching will mean the execution of six switching programs within the previous 2 year period. Two of these switching programs must be at the highest switching level attained by the Switching Operator in situations of having more than one switching level and four at the lowest.

As evidence, each of the six switching programs carried out in the two years preceding reauthorisation must be supported by its associated risk assessment and permit to work forms.

7.15.3 Network Interview for Re-Authorisation.

On successful completion of all the required theoretical assessments, having evidence of active switching with adequate number of programs completed and the completion of a Switching Authority Request form, will alert the Formal Leader to make arrangements with the System Operations and Switching Coordinator for an authorisation interview to be conducted.

The authorisation interview will be conducted by the System Operations and Switching Coordinator, the Formal Leader of the Switching Operator and the Switching Operator who requires reauthorisation.

The purpose of this interview is to review the results of all theoretical assessments completed, assess the level of active switching experience and the quality of associated permits / risk assessments submitted; and ask questions about this in context of the environment that the Switching Operator performs switching operations.

Human error, fatigue, frustration, change management, place keeping practises, two way communication, self-checking, time pressure, peer checking and attitude towards safety will be some of the elements discussed and checked.

The discussion is also to provide an opportunity for the Switching Operator to give feedback on the quality and effectiveness of the requalification assessments and to voice any other concerns he may have with regards to switching practises.

7.15.4 Insufficient Active Switching for Network Reauthorisation.

In the event a Switching Operator has executed less than 6 switching programs, 2 of these at their highest switching level in the previous authorisation period, the Switching Operator must execute a switching program at the level having less than the required number of switching programs to supplement the shortfall.

7.1 Protection and Metering Requirements for Network Reauthorisation.

7.1.1 Protection.

- Six Secondary Isolation Schedule;
- Substation Entry;
- Generation Induction Training as applicable; and
- Network Permit To Work;

7.1.2 Metering

- Six Secondary Metering Isolation Schedules.
- Substation Entry;
- Generation Induction Training as applicable; and
- Network Permit To Work;

7.2 HPCC Controller Reauthorisation Requirements.

- Network Permit To Work Training.
- Generation Induction.
- Substation Entry Training.
- Switching Operations Level 7. (Written theory assessment i.e. challenge test).
- Evidence of switching activity as a Controller in HPCC.

7.3 Generation Reauthorisation Requirements.

- Generation Induction Training;
- Generation 6.1 training;
- Generation 6.2 training.

7.4 Portfolio of Evidence for Authorisation / Reauthorisation.

Evidence can be in the form of assessment results in VETrack, certificates and signed forms in support of the switching authorisation.

If the is no evidence to support the authorisation, it shall be withheld until such time that sufficient evidence can prove that the standard has been met and or the authorisation is supported.

7.4.1 Network:

- **Initial (L).**

  In Training Switching Operators.

  - Successfully completed the theoretical training courses at a recognised training organisation (RTO); and
  - Completed and signed Switching Authority Request form.

  In Service (P).

  Restricted Switching Operators.

  - Successfully completed the theoretical training courses at a recognised training organisation (RTO), practical component competed and certificates issued;
  - PowerOn switching program writing training;
  - PowerOn switching tablet training;
  - Completed field observation under the supervision of an authorised Switching Operator and the Switching Coordinator; and
  - Completed and signed Switching Authority Request form.

  In Service (X).

  Fully authorised Switching Operators.

  - Copies of six switching; and
  - Completed and signed Switching Authority Request form.

- **Reauthorisation.**
  - Substation Entry not expired;
  - Network Permit to Work not expired;
  - Network Switching Theory & Operating Experience; and
  - Copies of 6 switching programs have been executed in the 24 months prior to the reauthorisation assessment. Two of these switching programs executed at their highest switching authorisation level and four at the lowest. All switching programs must include copies of the associated risk assessments and permits issued / used;

Note: If the Switching Operator cannot provide the required six switching programs for rea-authorisation, he/she is required to write and execute switching programs at the level having less than the required number to supplement the shortfall.

- Switching Authority Request form; and
- Authorisation Interview assessment form.

7.4.2 Protection and Metering Secondary Systems.

- **Initial**
  - Six Secondary Isolation Schedules (SIS / MIS) prepared;
  - Substation Entry;
  - Generation Induction Training;
  - Network Permit To Work;
  - Completed and signed Switching Authority Request form.
- **Reauthorisation**
  - Six Secondary Isolation Schedules (SIS / MIS) prepared or checked in previous 24 months;
  - Substation Entry not expired;
  - Generation Induction Training not expired;
  - Network Permit To Work not expired; and
  - Completed and signed Switching Authority Request form.

7.4.3 Generation.

- **Initial**
  - Generation Induction Training;
  - Generation 6.1 training;
  - Generation 6.2 training (Applicable to HV stations only); and
  - Completed and signed Switching Authority Request form.
- **Reauthorisation**
  - Generation Induction Training;
  - Generation 6.1 training;
  - Generation 6.2 training. (Applicable to HV stations only); and
  - Completed and signed Switching Authority Request form.

7.4.4 HPCC Controller.

- **Initial**
  - PowerOn switching program writing;
  - PowerOn tablet switching;
  - Network Permit To Work;

- Generation Induction;
- Substation Entry;
- Switching Operations Level 7. (Written theory assessment);
- Completion of On Job Training Workbook (CS10#5559974); and
- Completed and signed Switching Authority Request form.

- **Reauthorisation**
  - Generation Induction Training;
  - Network Permit To Work not expired;
  - Substation Entry not expired;
  - Switching Operations Level 7. (Written theory challenge test);
  - Evidence of switching activity as a Controller in HPCC and
  - Completed and signed Switching Authority Request form.

8. AUTHORISED PERSONS.

Only persons who hold a current and valid authorisation by the Horizon Power Systems Operations Manager, shall be permitted to switch and or issue permits on specified sections of the Horizon Power Network, within Generation or on any assets.

References.

Legal References:	Electricity (Network Safety) Regulations 2015. Occupational Safety and Health Act 1984. Occupational Safety and Health Regulations 1996.
Standards & Guidelines:	AS5577-2013 Electricity network safety management systems Worksafe 2014 Guideline for the Safe management of high voltage electrical installation. ENA Doc 001 - 2008 National Electricity Network Safety Code. ENA NENS 03 - 2006 National Guidelines for Safe Access to Electrical and Mechanical. ENA NENS 04 - 2006 National Guidelines for Safe Approach Distances to Electrical Apparatus. ENA NENS 09 - 2004 National Guidelines for the Selection, Use and Maintenance of Personal Protective Equipment for Electrical Hazards.
Related Policies & Other Documents:	Safety and Health Management System. Network Permit to Work Standards. Generation Permit to Work Standards. Field Instruction 8.6 Switching Authorisation CS10 # 2087969.

Field Instruction 6.22 Replacing Fuses on the HV/LV Underground and Overhead Network after a Fault has occurred. CS10 # 2501027.

Generation Instruction.

HPCC Control Room Operator Training CS10# 3449758

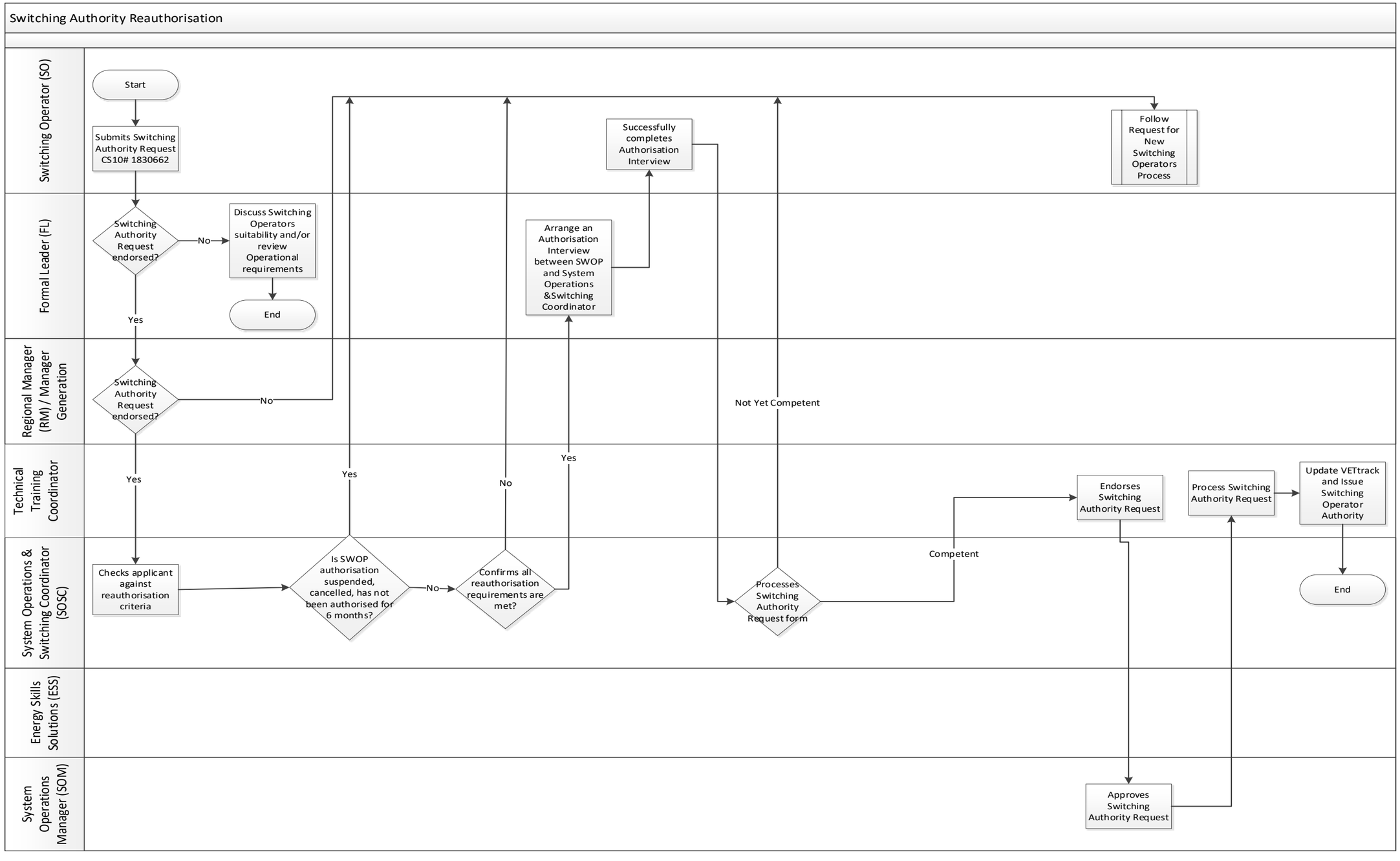
Transmission Substation Field Instructions 2.16 Switching Activities CS10 # 2652042.

OSH-1-1-12 Principle 10 – Training and Competencies CS10 # 2631017.

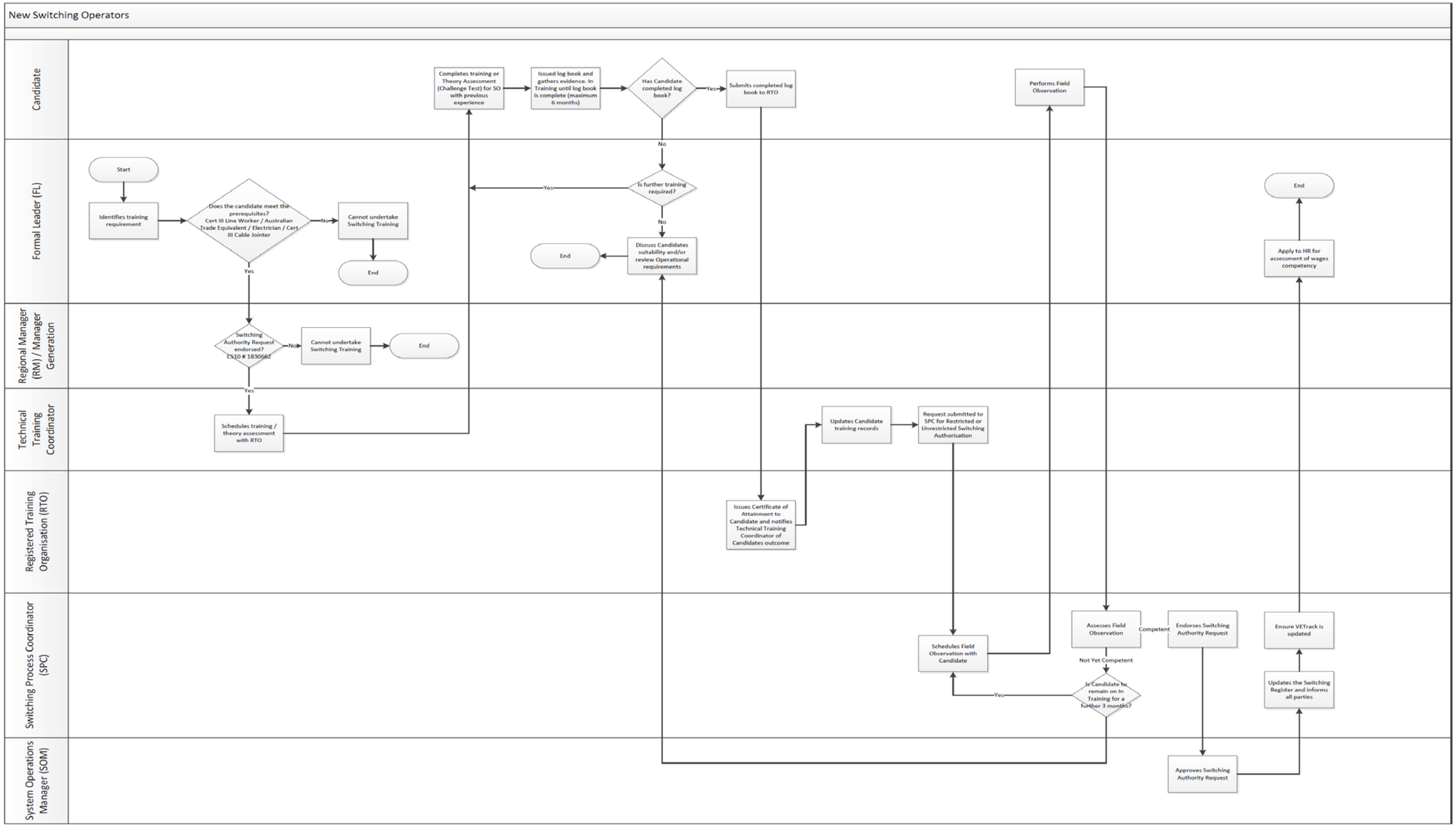
OSH-3.2-1-01 Safety and Health Training Procedure CS10 # 3229961.

Operating Experience CS10 # 11824441.

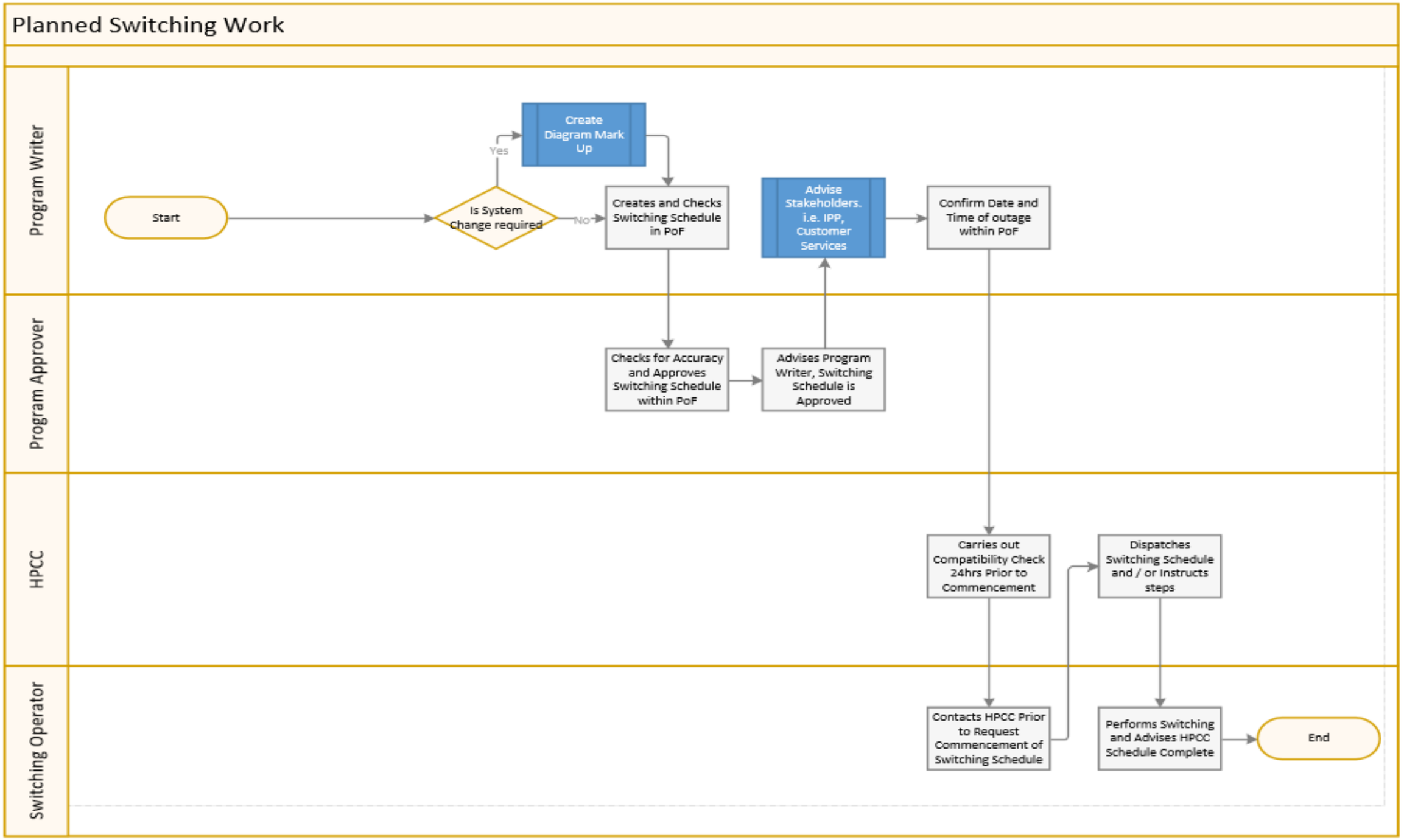
APPENDIX A. FLOW DIAGRAM INDICATING REAUTHORISATION (EVERY TWO YEARS)



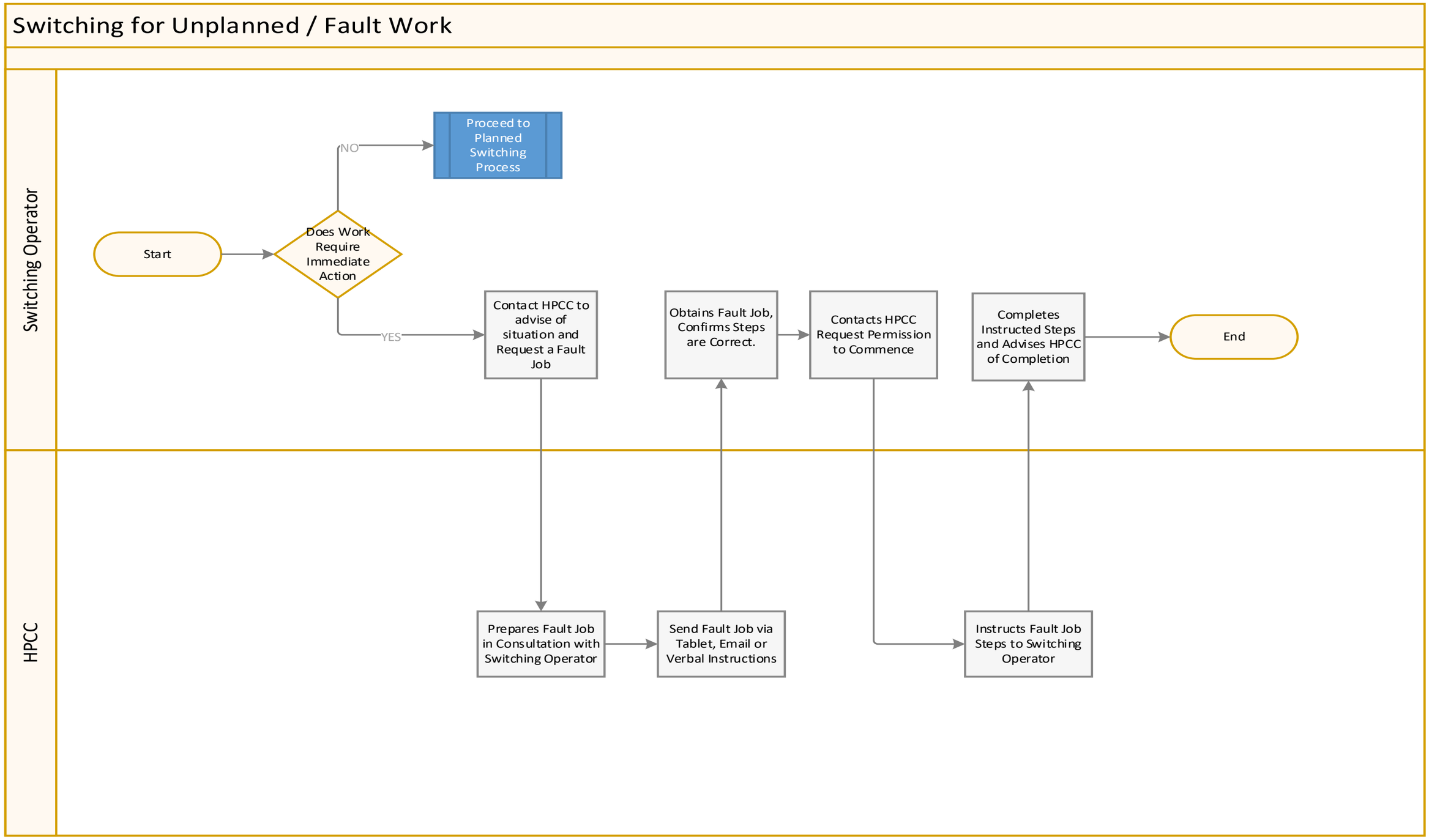
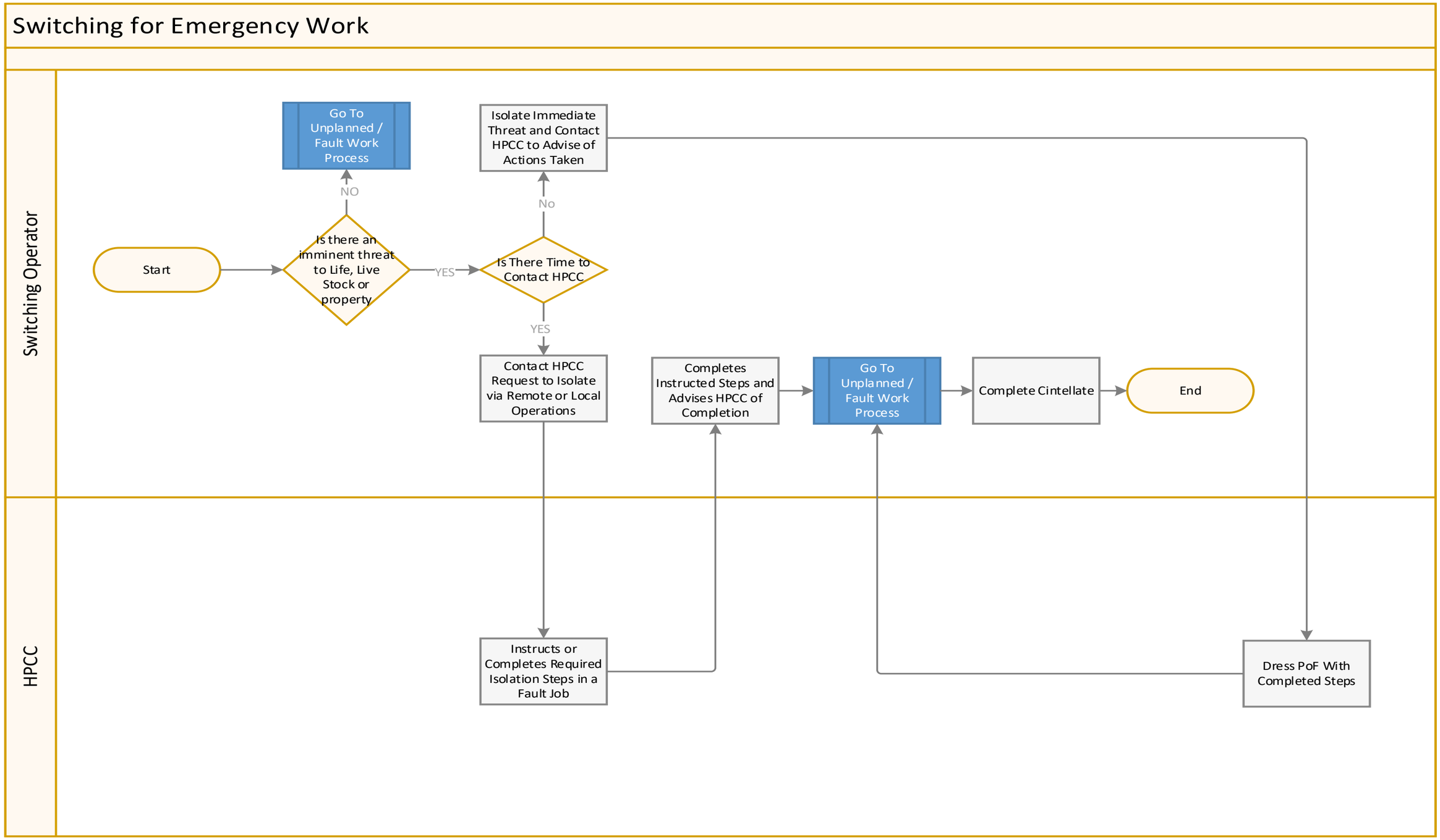
APPENDIX B. FLOW DIAGRAM FOR NEW SWITCHING OPERATORS



APPENDIX C. PLANNED SWITCHING FLOWCHART



APPENDIX D. UNPLANNED SWITCHING FLOWCHART



APPENDIX E. EMERGENCY SWITCHING FLOWCHART