



Surmont Lockout and Tagout Procedure - Common

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1 Purpose

The purpose of this document is to describe how to safely isolate energy sources and ensure work does not commence unless it has received the necessary authorization. Operations will use ISSoW to perform isolations, Risk determination/Assessments and isolation revalidations.

2 Background

All ConocoPhillips Canada (CPC) Oil Sands Surmont Operations Site Specific Operating Practices (SSOPs) are updated to conform to Health, Safety and Environment (HSE) regulatory and operational requirements.

3 Prerequisites

3.1 Conditions

In order for a portion of the plant or piece of equipment to be isolated the following conditions must be met:

- The boundaries must be as close as practical to the equipment;
- There must be sufficient communication between the isolation designer and relevant Maintenance personnel to understand the scope and tasks;
- The piping from the equipment to the isolation points must be visually traced, identifying all energy sources;
- The correct sequencing of isolations must be considered. ISSoW requires the sequence to be electrical isolations, process isolations, and positive isolations;
- The level of isolation must be sufficient to adequately cover the level of risk of the task; and
- Electrical to visually check tags and Single Line Diagrams for all energy sources.

3.2 Deviations

- Any deviations from this procedure must be documented, risk assessed and have an approval signed off by the Field Manager.

3.3 Redundancy

- Not applicable.

3.4 Personnel

- Unit operator;
- Control room operator; and
- Maintenance personnel.

3.5 Competency

This procedure is to be performed by:

- A Surmont operator, supervisor or trainer deemed competent in implementing this procedure;
- A trainee deemed competent in implementing procedure; and
- A trainee, under the direct supervision of a Surmont operator, supervisor or trainer deemed competent in implementing this procedure.

3.6 Tools and Equipment

- A valve wrench to assist with opening larger valves;
- An adjustable wrench to adjust valve packing glands and plugs, as required;
- A small pipe wrench to remove and replace caps, as necessary;
- Lockout box, lockout locks and tags, zip ties, uniquely numbered plastic car seals, and steel lock cables;
- Portable air monitor, as required; and
- Maintenance equipment as required.

3.4 Relevant Documents (hyperlinked)

- [Shortcut to PIDs](#)
- [Long term Isolation Audit Checklist \(SUR-A0A-GE-00-ORF-0001\)](#)
- [Shortcut to MSDS sheets](#)
- [Shortcut to Nalco MSDS ConocoPhillips Phase 1 and Phase 2](#)
- [Bypassing Safety Shutdown Devices \(CPC-OLS-OPS-PRC-7009\)](#)
- [Electrical Work \(CPC-ALL-HSE-PRC-167\)](#)
- [Gas Detection \(CPC-ALL-HSE-PRC-170\)](#)
- [Hot Work \(CPC-ALL-HSE-PRC-175\)](#)
- [Hydrogen Sulphide \(H2S\) \(CPC-ALL-HSE-PRC-176\)](#)
- [Industrial Hygiene Program \(CPC-ALL-HSE-PGM-155\)](#)
- [Positive Isolation \(CPC-ALL-HSE-PRC-181\)](#)
- [Respiratory Protection \(CPC-ALL-HSE-PRC-151\)](#)
- [Task Risk Assessment Guide \(CPC-ALL-HSE-GUI-129\)](#)
- [Work Site Entry \(CPC-ALL-HSE-PRC-164\)](#)
- [Workplace Hazardous Materials Information System \(WHMIS\) \(CPC- ALL-HSE-PRC-153\)](#)
- [Car Seal Procedure Installation and Removal \(CPC-OLS-OPS-PRC-7203\)](#)
- [Confined Space Entry Procedure \(CPC-ALL-HSE-PRC-165\)](#)
- [Lock Removal Form \(CPC-ALL-HAS-FRM-7008\)](#)
- [Electric Single Line Drawings](#)
- [Canada All Lockout/Tagout procedure \(CPC-ALL-HSE-PRC-179\)](#)
- [ISSoW Manual](#)
- [ISSoW Outage Procedures](#)
- [Process Isolation Standard \(ALL-A0A-GE-MST-0004\)](#)

3.7 Acronyms and Definitions

DCS	Distributed Control System
EOP	Environmental Operating Practice
ESP	Emergency Shutdown Pushbutton
IC	Isolation Certificate
LOTO	Lockout and Tagout
OHOP	Occupational Health Operating Practice
MRA	Model Risk Assessment
PIC	Person In Charge
PTW	Permit To Work
PPM	Parts per million
PSSR	Pre Startup Safety Review
SLD	Single Line Drawings
SOP	Standard Operating Procedure
SSOP	Site Specific Operating Practice
STL	Shift Team Lead
TRAC	Task Risk Assessment Checklist
TJSA	Team Job Safety Analysis
VRA	Variable Risk Assessment
WLS	Warm Lime Softener
WIC	Workplace Inspection Checklist

Actuated Valve – Valve that has an assembly to power the valve open or closed. Actuated valves are acceptable for isolation purposes only if (1) they are locked and tagged, (2) fail in the desired (normally closed) position, (3) the energy source (pneumatic, hydraulic, electric) is disconnected, and (4) they are bump tested.

Bleed Valve – Valve in a piping system that is opened to bleed pressure from a part of the system that is isolated from the live system by a closed valve.

For a double block and bleed, the bleed valve is located between the two closed valves.

Blind Flange – Flange used for isolation purposes rated to the design pressure of the piping system or equipment being isolated.

Blind Verifier – Operations personnel (typically the Responsible Operator) assigned to check that the blinds are installed or removed at the designated locations and sign off on the associated paperwork.

Blind Skillet (Pancake) – Solid metal plate engineered and manufactured to isolate the faces of two flanges rated to the design pressure of the piping system or equipment being isolated. Since this blind skillet is a pressure-containing device, it must be engineered for proper size, thickness, metallurgy and method of manufacture, to ensure integrity.

Block Valve – Normally a ball, plug, or gate valve (occasionally a globe valve). A butterfly valve is not acceptable as a block valve for flammable or toxic materials.

Breaker – A device designed to open and close a circuit by non-automatic means and to open the circuit automatically on a predetermined overcurrent without damage to itself when properly applied within its ratings.

Bump Test – Attempting to start equipment by using the normal starting controls following the isolation and opening of the main breaker or disconnect, to verify that the equipment will not start (includes attempting to start control valves and other equipment). Note: most bump tests are electrical, but bump testing includes all equipment that actuates, starts, engages, or turns. Caution as the DCS might prevent equipment from starting, not just the breaker isolation. Bump tests are designed to test that the main breaker has been isolated, or that (when normal starting practice is followed) the equipment will not start (i.e. bump test of an XV valve to prove it fails to the desired position). The ESP must not be pushed in. No process isolations take place before or during the bump test. The bump test consists of the following steps:

- Panel Operator – Starts equipment briefly (bumps) with Unit Operator standing by confirming the equipment starts. If equipment is running, this step can be omitted. Panel Operator- Shuts down the equipment.
- Unit Operator – Isolates (and locks) the main breaker. Note: Qualified electrician must be called in for equipment >750V, and may be called in to electrically isolate any equipment. See Sections 6.6-6.9.
- Unit Operator – While standing by the equipment, requests Panel Operator to attempt to start the equipment.
- Panel Operator – Attempt to Start the equipment and inform the Unit Operator of the equipment status.
- Panel Operator – Checks DCS to ensure equipment didn't start. Check that the cause of the equipment not starting isn't from interlocks or DCS logic holding out equipment and that the reason the equipment didn't start is a result of the electricity being isolated, not the interlocks or other DCS logic.

- Unit Operator – Ensures the equipment does not start. If it does start, shut it down. STOP the isolation and contact qualified electrician to investigate.

Double Block and Bleed Valves (DB + B) – Consists of two valves in a series—closed, locked, and tagged—with the pressure between the valves bled through a locked open and tagged vent directed to a safe location. When a double block and bleed valve is used to isolate an area for hot work activities, the vent line is to be continuously monitored.

Electrical Verifier is a qualified and competent electrician. This is to ensure proper isolation, the hazards, and to test for absence of voltage.

Field Lockout Box – A Blue lockout box that starts with the letter “S1F or S2F” followed by a number. Field Lockout Boxes may be taken to the field to be used by work groups greater than 5 (five) persons so that they may install their personal locks in a manner that controls access to the Primary Lockout Box. The Permit Holder places the key to the Permit Holder personal lock that was installed on the Primary Lockout Box inside the Field Lockout Box. The remainder of the work group installs personal locks on the Field Lockout Box.

Verifier – Isolation Verifier is the Shift Team Lead (or designate) that fulfills the duties as outlined in Section 5.6., Isolation Verifier and KPI Paperwork. The **Electrical Verifier** is a qualified and competent electrician. This decision is based on the nature of the isolation, the hazards, and whether electrical testing equipment is needed to test for stored energy.

Harmful Substance – Substance that, because of its properties, application, or presence, creates or could create a danger to the health and safety of a worker exposed to it. It may include a chemical or biological hazard.

Hazard – Situation, condition or substance that may be detrimental to the safety or health of workers.

Isolation Certificate (IC) – A certificate generated from ISSoW that contains all the isolation points used by operations and maintenance to ensure that a proper isolation of equipment occurs.

Isolation Plan – The implementation of safing out equipment and includes: marked-up P&IDs, LOTO, SLDs, locks, tags, and equipment needed to ensure zero energy state for workers.

Isolation Box Personal Lock Sheet – Sheet used to record the installation and removal of locks on the Isolation Box.

Isolation Certificate Number – Unique number identifying each energy Isolation. This is automatically generated in ISSoW.

Maintenance – Any person who (1) is doing work on the system for which the lockout is conducted for; (2) is employed or contracted by CPC; and (3) is trained and competent in their LOTO role. This includes (but is not limited to): members of CPCs maintenance staff, contractors working for CPC, construction personal, projects personal, and contract staff.

Operations Lockbox Seal – A seal installed on the Lockout Box by the Shift Team Lead, designate, or qualified operator verifying that the isolation is in place, as defined, and it is safe to proceed with the given job.

Permit Holder – Receives the Permit to Work, supervises the work carried out under an Isolation Certificate, and is responsible for reviewing the permit to work with the workers.

PIC – Person in Charge – Person responsible for the work being carried out under an Isolation Certificate and reviews the Isolation Certificate with operations and accepts it as safe to proceed with the given work, by signing the Isolation Certificate and the Permit. This may be (but not limited to): Maintenance Lead (Instrument/Electrical and/or Mechanical), Construction Lead, or Commissioning Lead. The Person In Charge can also be the Permit Holder

Personal Lock – A lock used to protect workers from injury. Each worker must have a personal lock in place before proceeding to work as per Section 5.11. The PIC lock cannot be used as a personal lock.

PIC Lock – Lock installed by the Person in Charge after reviewing the isolation certificate and permit to work with Operations and agreeing that it is safe to proceed with given work. The lock will not be removed until the job is complete. The PIC lock cannot be used as a personal lock.

Process Isolation – There are 3 types of isolations for process isolation. Non proved isolation, proven isolation and positive isolation.

- **Non Proved Isolation** – This is a single valve or double valve isolation. This is used for the lowest risk level isolation only.
- **Proved Isolation** – This is a double block and bleed isolation, double seal in a single valve body with a bleed in between, and single block and bleed (should not be used with hazardous substances). Medium to high level risk.
- **Positive Isolation** – This is a physical disconnection, double block and bleed with blinding, single block and bleed with blinding (should not use with hazardous substances) Highest level risk.

Electrical Isolation – Use SOP CPC-ALL-HSE-PRC-167

Critical Equipment Isolation – Use SOP CPC-ALL-HSE-PRC-179

Own Trade Isolation – Electrical personnel to perform their own isolation for small short term work.

Isolation Lockout Box – A red lockout box that is labelled S1XXX or S2XXX, that remains in Operations' control. This box controls the keys to corresponding locks used during the lockout. Not to be confused with the blue Field Lockout Box.

Responsible Operator – Unit Operator assigned to do the isolation by the Shift Team Lead.

Single Isolation Valve – Single closed, locked and tagged block valve used to isolate.

Variable Risk Assessment – A risk assessment performed by a qualified engineer to allow for high risk Isolations to be performed. (ie. Single block on hazardous substances).

Work Supervisor – As defined and noted on the PERMIT TO WORK.

Zero Energy state – When all sources of energy have been reduced to a cceptable levels of risk. This includes (but not limited to): draining, depressurizing, displacement, venting, electrically isolated, and neutralizing.

4 Safety and Environment

4.1 Hazards

- See Specific VRA, TJSA, TRAC, MRA.

4.2 Safety Systems/Precautions

- Fire eyes are operating or Bypassing Safety Shutdown Devices SSOP is followed;
- All containment buckets and basins properly grounded;
- Communications - two-way radio – Appropriate area channel (Check with the Permit to Work Office.
- Ergonomics - correct body position;
- Protection and control relays in maintenance mode; and
- At the completion of work pertaining to the issued PERMIT TO WORK, work teams must clean up their work area and return the PERMIT TO WORK to the permit office.

4.3 Personal Protection Equipment

- Normal Personal Protection Equipment (PPE). See and follow the Material Safety Data Sheet (MSDS);
- Respiratory protection and chemical protective clothing may be required if venting lines or draining to containment; and
- Face shield, goggles and rubber gloves are required if it is necessary to vent/bleed/drain the pump or any associated piping.

4.4 Environment

- All normal precautions to avoid spills;
- Report **all spills** to CPC using IMPACT;
- Venting/bleeding/draining liquids captured in containment;
- Captured liquids and slurries disposed of in approved manner. Consult your supervisor, if not absolutely sure of disposal manner; and
- Natural gas venting/Flaring.

5 Procedure

5.1 Plan and Prepare

- Receive permission from the STL (or designate) and Control Room Operator to (1) take the equipment out of service and (2) initiate an energy isolation.
- Develop list of isolation points and determine the level of risk by performing a risk assessment using the ISSoW process.
 - Flushing and/or purging procedures (if required).
 - Any other safe work procedures based on the nature of the job.
 - Marked up P&IDs.
 - Single Line Diagrams marked up by the electrical department.
- Any activity that will inhibit, disable or interfere with safety-critical equipment (including car seals) or system must be authorized as detailed in the Bypassing Safety Shutdown Devices document (CPC-ALL-HSE-PRC-7009). The marked up P&IDs, Isolation Certificate and Permit(s) documents and any other documents pertaining to the Isolation Plan are kept with the red Isolation lockout box in the PERMIT Office.
- Any copies of any documents mentioned above that are made for use in the field or otherwise, are to be clearly marked COPY on every page with a stamp in red ink or red pen.
- Follow both the Car Seal Procedure Installation and Removal, and Bypassing Safety Shutdown Devices Canada Oil Sands SSOPs.
- Ensure all sources (i.e.: electrical, heat trace, pressure, thermal) are identified.

5.2 Create Isolation Certificate

- Operators should be fully trained in using ISSoW before performing Isolations;
- Create Isolation certificate by adding isolation points;
- Request Approval for isolation and attach all necessary documents to the Isolation Certificate;
- Supervisor/Leads/Approved Designate will approve the isolation; and
- Print Isolation Certificate and Isolation tags and allocate locks.

5.3 Shut Down Equipment

- Shut down the equipment using the Site Specific Operating procedure.

5.4 Isolate Energy Sources as per the Isolation Certificate

- Isolate all energy sources as per the relevant Isolation Certificate and Isolation Permit(s).
- Perform a bump test on non-electrical equipment that might actuate, start, or engage. See Section 3.8, Bump Test.
- Perform a bump test on the electrical equipment. See steps listed in Section 3.8, Bump Test.
 - If equipment starts when it shouldn't have, STOP. A qualified electrician must isolate the equipment and investigate why it didn't stop.
 - If a process or interlock is holding out the equipment, STOP. A qualified electrician must isolate the equipment.
- **Note** – Anyone working on isolated equipment has the right to verify the isolation points. This should be done at the same time as the Permit Holder review, if possible. Otherwise, workers may check the isolation points with their respective Permit Holder.
- **Safety** – The energy isolation must be stopped and the Isolation Certificate must be reviewed/reissued if:
 - Any isolated equipment cannot be proven to be in a “zero energy” state.
 - Any involved workers, including the Responsible Operator, have any safety concerns with any part of the isolation, which cannot be resolved by referring to the existing Isolation Certificate.
 - If valves need to be manipulated that are not on the Isolation Certificate, then a new Isolation certificate must be created with the added valves.

5.5 Lockout and Tagout Equipment – General

- Obtain a lock box and assigned lock set(s) to effectively isolate each energy source plus all required drains and vents.
- When manipulating valves from their normal operating state for maintenance purposes, these valves need to be tagged indicating action taken, i.e. opened or closed.
- **Safety** – Control valves are not to be used as isolation valves since they are not normally designed as positive shut-off devices.
- **Safety** – XVs, which are designed as positive shut-off devices, may be used as Isolation valves as long as all sources of energy (mechanical, pneumatic, electrical) have been isolated from the XV. The XV must fail in the position required to provide a zero energy state for the equipment isolated. Bump test the XV by disconnecting the energy sources, then requesting Panel to actuate the valve. This proves the valves will fail in the desired position.

- Attach isolation tags to isolation points as identified in the relevant Isolation Certificate.
- **Note** – In the case of EHT or lighting panel isolations, several isolation points may be isolated with a single locking device. However each isolation point must have an isolation tag(s) attached.
- Each tag must contain the Name of Responsible Operator, Date of Isolation, full Lockout Number (to match with Lockout # on Isolation Certificate), Signature of the Responsible Operator and the reason.
- Place the key(s) for the isolation locks plus any additional locks from the applicable set(s) in the box at the completion of the energy isolation.
- Electronically sign the Isolation Certificate as the Isolation Authority.

5.6 Prove that Obstructions are Removed

- Prove that drains/bleeds are free of obstructions in piping systems as per the Isolation Plan.
- **Safety** – In some cases, if not done correctly, proving that piping system drains are free of obstructions can cause serious injuries or death. Only persons with experience in performing this task should attempt it. If vents, pressure gauges or transmitters are available, they may be used as a reference before attempting to unplug drains.

5.7 Positive Isolations (Blinding/Blanking)

- Positive isolations are a separate step in ISSoW and require separate approval;
- Request Approval for positive isolation points on the Isolation Certificate;
- Supervisors/Leads or designate will approve the isolation;
- All blinds require tags to be hung on them;
- Identify blinds following the procedure established by hanging the positive isolation point tags in the field before blinds are swung;
- Isolation Permits must be obtained by maintenance to swing the blinds using the ISSoW process;
- Maintenance signs the points in the Isolation Certificate as complete;
- Operations verifies the positive isolation points are in place and signs the points as verified in ISSoW; and
- After Positive isolation points are installed (blinds swung), close the Isolation Permit.

5.8 LOTO Verifier

The LOTO Verifier is the Shift Lead, (designate or qualified operator) and is responsible for the following points:

- Checks that (1) all points are identified on the Isolation Certificate, (2) all identified points have been properly locked out, (3) that the P&IDs are correctly indicated, (4) that all locks and keys associated with the isolation are accounted for.
- Electronically Sign the Isolation Certificate as the Isolation Verifier, as appropriate, validating that the isolation is complete for the defined job. Electrical confirmations must be completed by Electrician, depending on the work scope.
- Attach an operations lockbox seal to the red isolation lockbox sealing the box and deeming it safe for the required work scope.

5.9 Issuing Isolation Certificate

- After Isolation points are in place and signed as verified in ISSoW the Isolation Certificate may be issued for work to take place.
- Perform work as needed using the Permit to Work system.

5.10 Complete and Review PERMIT TO WORK

- Operations, Maintenance and Permit Holder - Complete and review all Permit(s) to Work and Isolation Certificate(s).
- The Permit Holder must be responsible for the permit to work. This copy must be returned to the Permit Office at the completion of the work for which it was issued, or by the time specified on the Permit or by the Permit issuer.
- Person In Charge to place Person In Charge lock on lockbox.
- Lock the lockout box using a personal lock and tag.
- Attach an applicable Personal Lock Identification Tag with the personal lock on the lockbox.
- Record this lock on the Isolation Box personal lock sheet.

5.11 Lockout and Tagout Equipment – the Individual

- Each member of the work group, including the Permit Holder, must: (1) sign onto the PERMIT TO WORK, (2) lock a personal lock and personal tag on the relevant lockout box, and (3) sign their lock on the Isolation Box Personal Lock Sheet prior to any work commencing.
- The keys for personal locks are the responsibility of the individual.
- The personal lock on the lockbox must be removed at the end of the worker's shift whether or not the work is complete, and re- attached if and when the individual recommences work covered under the applicable.

- The worker must complete the Isolation Box Personal lock sheet in the appropriate areas each time the personal lock is attached and removed from the box.
- The Operations Lockbox Seal shall remain on the lockbox until all PERMITS pertaining to that isolation have been returned and signed off as complete by the Person In Charge.
- The Maintenance Supervisor or designate has the key for the Maintenance Person In Charge Locks for both Instrument/Electrical & Mechanical locks. The Construction Managers or designate have the keys to their respective Construction/Projects Person in charge Locks and the CSU Superintendents or designate have the keys to their respective CSU Person in Charge Locks. The Person in Charge lock(s) must not be removed until all personal locks working under the assigned PERMIT TO WORK have been removed.

5.12 De-Isolation Process

- All work should be completed and Permits to Work closed before proceeding to the de-isolation process.
- Personal locks must be removed from the Lock Box before the corresponding Permit Holder lock is removed.
- The Permit Holder lock must be removed after the job is completed. The necessary department(s) that have applied a Person In Charge lock will need to be contacted to remove their Person In Charge lock.
- Request Approval for De-Isolation in ISSoW for positive isolation points only.
- Supervisor/Leads or designate will approve the De-Isolation for positive isolation points only.
- At the completion of all work pertaining to the isolation point, the Operations Lockbox Seal is cut off the lock box.
- Remove the locks from the Positive Isolation points only.
- A De-Isolation permit will need to be created by maintenance to remove the blinds.
- Remove the positive isolation points and close the Isolation permit(s).
- Maintenance will electronically sign the points in ISSoW as being removed.
- Operations will sign the points as verified in ISSoW. Request Approval for De-isolation of Process and Electrical Isolations.
- Leads will approve the De-isolation for Process and Electrical Isolations.
- Operations will remove the isolation locks from the Process and Electrical Isolation points.
- Electricians will obtain a De-Isolation Permit to remove the Electrical locks from the Electrical Points and close the disconnecting means.
- Electrician closes De-isolation permit.

- Electrician to electronically sign electrical points as “Isolator” verifying the energy is restored.
- Operations to sign process isolation points as “Verifier” verifying the lock has been removed.
- Replace the lock set plus the master key in its corresponding lock box and return the box, and any other locks and keys used, to the Permit to Work Coordinator.

5.13 Cut off Personal Locks (as necessary)

The CPC representative may cut off and remove a worker’s locking and tagging devices if all the following conditions are met:

- The worker is unavailable or cannot be contacted to remove the locking and tagging devices when the work has been completed and it becomes necessary to restart the equipment.
- The job and work site has been inspected by the Permit Holder and the CPC representative.
- Reasonable attempts have been made to contact the worker and these attempts have been unsuccessful, but they are documented.

Note: A worker must be notified at the start of their next shift if the worker's personal lock(s) have been removed since the worker's previous shift.

- All affected workers have been notified.
- The Permit to Work has been checked, and it has been determined that the equipment is safe to operate.
- LOTO Personal Lock Removal Authorization Form (CPC-ALL-HSE-FRM-7008) has been completed.

6 Special Considerations

6.1 Construction/Project Work & CSU (Commissioning & Start-Up)

- Any work that is designated a project must be assigned to a Construction Lead.
- The Construction Lead for an assigned project must attach a Green Person in Charge lock, a green Construction/Project tag, and indicate which Project (i.e. construction or operations project) to the Primary Lock Box after verifying the isolation points pertaining to that project.
- The key(s) for Construction/Project Control Person in Charge locks are to be controlled by the Construction Manager (Or Designate).
- At the completion of work, the Person in Charge lock must not be removed from the primary lock box until either a Pre-Start up Safety Review has been completed to the satisfaction of the Operations and Maintenance reviewers and all “A” level deficiencies have been addressed in which case no CSU involvement is required or CSU has taken over control of the lock box by placing an Orange CSU Person In Charge lock and matching Orange CSU tag to the isolation lock box taking custody of the isolation.

- When CSU has placed a CSU Person in Charge lock onto the lockbox and taken control of the isolation no other lock can be attached to the lockbox unless CSU is aware and have approved it. This includes any additional construction work that may be required! CSU will communicate with operations project coordinator to determine if PSSR is required before or after completion of dynamic testing and LOTO removal.
- Once CSU activities are completed then CSU will remove their Orange Person in Charge lock from the isolation lockbox and hand isolation back to operations.

6.2 Field Lock Box

A Permit to Work may require the use of a Blue Field Lockout Box if the work group consists of **five** or more members or if special circumstances warrant it, at the discretion of the Permit to Work coordinator or Person in Charge.

- If a Blue Field Lockout Box is warranted, the Permit Coordinator must issue a blue box with the letter 'S1F or S2F' preceding the box number. See Appendix B, Photo 5.
- The Person In Charge/Permit Holder must attach the following to the primary lockout box: (1) a Personal lock, (2) the blue field lock box tag (or equivalent) which identifies the matching blue field lockbox which will be used, (3) a Personal tag, (4) additional information at the PERMIT COORDINATORS request.
- The key for the Person In Charge/Permit Holder Personal lock must be placed in the Field Lock Box.
- Each member of the work group must (1) attach a personal lock and personal tag on the Field Lockout Box and (2) sign the Field Lockbox Personal lock sheet, before commencing any work.
- The Field Lockout Box, associated Field Lockbox personal lock sheet, and associated paperwork are the responsibility of the Permit Holder.
- Permit to Work Coordinator must provide photocopies of any associated documents (in red ink marked 'copy') to the Permit Holder who must leave them at the work site with the Field Lockout Box.
- When work pertaining to the PERMIT TO WORK is complete, the personal locks must be removed from the Field Lock Box. The Person In Charge /Permit Holder must (1) obtain their Personal key from the Field Lock Box and (2) return the box and documentation to the PERMIT Office.
- The Person In Charge /Permit Holder must (1) remove their Personal lock from the Isolation Lock Box and (2) return lock, (3) return the key, (4) return the tags, (5) return associated documentation, and (6) return all borrowed or CPC owned property to the PERMIT TO WORK Coordinator.
- All persons locking on to an Isolation or field lockbox must sign on to the associated Isolation or Field Lockbox Register when putting locks on, and sign off when removing locks from any lock boxes.

6.3 Modification of an Existing Isolation Certificate

When circumstances call for the modification of an existing, issued Isolation Certificate:

- Contact the Operations Shift Team Lead or designate on duty at the time and discuss the reason for the proposed modification.
- All Permits must be pulled and closed before you can modify the current Isolation Certificate and be re-issued under the modified Isolation Certificate.
- The current Isolation Certificate must be sent back to draft, modified, re-approved and re-issued.
- All locks must be removed from the isolation lock box to gain access to the key to apply/remove a lock.

6.4 Alternate Means of Isolation

For piping systems containing harmful substances under pressure, if no practical means of positive isolation can be implemented, an alternate means of isolation that provides adequate protection of workers, certified as safe by a professional engineer, may be used. The alternate means of isolation will be approved by using a Variable Risk Assessment (VRA) through the ISSoW tool.

- Piping and vessels (other than those involved in hot work) (1) that do not contain harmful substances, and (2) in which confined space entry is not required, may be isolated with a single block.
- Single block isolation may be used as a means of isolation to install a blind flange or a skillet blind, providing the following conditions are met:
 - A bleed point downstream of the isolation is available and can be proven as zero energy within the system prior to the installation of the blind.
 - A Safe Work Plan to perform this isolation is developed in writing, approved by the Shift Team Lead on duty and filed with the rest of the documents for that isolation.
- Also Refer to Appendix B, Diagram 1 – Decision Flow Chart for Single-point Isolation in Piping Systems, and Diagram 2 – Minimum Lockout Standard.

6.5 Work on Live Electrical Equipment

- Refer to SOP Electrical Work (CPC-ALL-HSE-PRC-167)
- ISSoW Hot Work Permit must be obtained for all electrical work on live electrical equipment.

6.6 Isolating and Opening Breakers for Electrical Equipment

Safety – Certified, competent electricians will verify Zero Energy on all electrical points within LOTO's irrelevant of the voltage. The following shall apply to Electrical Isolations:

- The electrician must open the disconnecting means and rack out to the disconnected/test position prior to work commencing.

- The electrician must (1) attach a safety isolation hasp to the disconnecting means isolation point, (2) attach the black Electrical Verification lock to the safety lockout hasp, and (3) attach a properly filled out isolation tag to the black lock.
- The electrician keeps the black electrical Lock key.
- The electrician must also use personal locks as per section 5.8 of this SSOP when working on the isolated system. The electrician must sign his personal lock onto the Isolation Lockbox Personal Lock Sheet and sign off when he removes his lock.
- The Responsible Operator must place an isolation lock on the same hasp as the Electricians lock.
- The electrician will electronically sign in ISSoW as “Isolator” verifying that there is zero energy.
- The operator will electronically sign in ISSoW as “Verifier”, verifying that this is the correct isolation point and the isolation lock was attached by the first operator. This should be a different operator than the one who directed the electrician to isolate the point.
- At the completion of work, the Responsible Operator must remove the isolation lock from the safety lockout hasp along with a properly filled out isolation tag.
- The Responsible Operator must contact the electrician to close the disconnecting means when required.
- The Electrician must (1) obtain the key for electrical isolation lock, (2) remove the lock and the safety isolation hasp from the breaker and (3) close the breaker.
- **Competent Instrumentation Technicians can lock out electrical feeds only if it feeds the piece of equipment that the instrument technicians are working on. This electrical feed must be equal to or less than 120 V.**

6.6.1 Isolating Lighting Panel Breakers

The approved method of isolating a breaker in a lighting panel is:

- Install a clamp-on breaker isolation. Tighten isolation securely onto switch tongue, pull cover over thumbscrew and close cover to prevent clamp from being loosened. Approved model is the Brady #65396 (See Appendix B, Photo 6)
Attach the isolation tag printed from ISSoW with a black tie strap to clamp-on breaker lockout. Attach an additional black tie strap onto clamp-on breaker isolation to ensure isolation is secure and thumbscrew cannot be accessed. (See Appendix B, Photo 6.)

6.7 OWN Trade Isolations

6.7.1 Use of Personal Locks for Electrical Work

- A competent electrician(s) may use up to 4 personal lock(s) connected directly to the field electrical isolation point for the purposes of testing, troubleshooting and repairs, provided that:
 - The equipment is a single piece of equipment that may need more than a single lock to fully isolate the piece of equipment. It cannot be more than one single piece of equipment.
 - All permits will be created in ISSoW for the scope of the work
 - The scope of work is intended to take place within a single shift
 - Only electricians are performing the work specified in the ISSoW permit
 - Required Electrical Work Permit and related documentation is attached (as per the CPC Electrical Work SOP – CPC-ALL-HSE-PRC-167)
 - The equipment being worked on is rated at 750 volts or less
 - The Unit Operator and Operations Shift Lead are aware of the work being carried out
 - An ISSoW permit is completed as per normal procedures
 - The personal lock, when placed on the electrical isolation point, must have a completed isolation tag and personal ID LOTO tag attached
 - If the work is not complete by the end of the worker's shift and the equipment cannot be returned to normal service, the Electrician must complete an Own Trade Isolation Certificate and attach a marked up electrical diagram
 - An Own Trade Isolation Certificate shall be entered into ISSoW
 - A marked up electrical diagram shall be attached to the Own Trade Isolation Certificate
 - The Own Trade Isolation Certificate shall be Approved for Issue by the Permit Coordinator or Shift/Area Lead and the OTIC number recorded on the Isolation tracking sheet at the permit office
 - Uniquely keyed locks shall be installed by the qualified electrician on the isolation point(s)
 - The key(s) for the lock(s) shall be placed in a lockout box
 - The electrician whom has installed the locks and "safed" the system shall be considered, "Person In Control" of the Own Trade Isolation
 - The electrician who is in control shall lock their personal lock onto the LOTO box first to secure the Lock Box during job
 - All other electricians working on the system shall lock onto the lock box and sign a LOTO register when locking on and locking off of the lock box
 - The in control electrician shall remove their lock last prior to removing the Own Trade Isolation Locks and Tags from the points
 - If the work will not be completed by the end of shift the Own Trade Lock Box along with the associated paperwork will be turned into appropriate permit coordinator office for reissue along with the permit

- The Lock Box shall be secured with a uniquely number car seal to maintain the Isolation integrity

6.7.2 Use of Personal Locks for Instrumentation Work

- A competent Instrument Technician(s) may use up to 4 personal lock(s) connected directly to the field instrumentation isolation point for the purposes of testing, troubleshooting and repairs, provided that:
 - The equipment is a single device that may need more than a single lock to fully isolate the device. It cannot be more than one single device.
 - The device cannot be a Safety Instrumented System (SIS) device.
 - 5 way and 3 way manifolds are acceptable to be manipulated by the instrument technician for the purpose of calibration and/or troubleshooting. If it needs to be isolated the isolation points must be placed on the root of the source for repair.
 - Process flows cannot be interrupted.
 - Required Instrument Work Permit and related documentation is attached (as per the CPC Instrumentation Work SOP – XXXX)
- If the work is not completed by the end of the workers shift and the equipment cannot be returned to normal service, the Instrumentation Technician must complete an Own Trade Isolation Certificate and attach a marked up P&ID.
 - An Own Trade Isolation Certificate shall be entered into ISSoW
 - A marked up P&ID shall be attached to the Own Trade Isolation Certificate
 - The Own Trade Isolation Certificate shall be Approved for Issue by the Permit Coordinator or Shift/Area Lead and the OTIC number recorded on the Isolation tracking sheet at the permit office
 - Uniquely keyed locks shall be installed by the qualified Instrument technician on the isolation point(s)
 - The key(s) for the lock(s) shall be placed in a lockout box
 - The instrument technician whom has installed the locks and “safed” the system shall be considered, “Person In Control” of the Own Trade Isolation
 - The instrument technician who is in control shall lock their personal lock onto the LOTO box first to secure the Lock Box during job
 - All other instrument technicians working on the system shall lock onto the lock box and sign a LOTO register when locking on and locking off of the lock box
 - The in control instrument technician shall remove their lock last prior to removing the Own Trade Isolation Locks and Tags from the points
 - If the work will not be completed by the end of shift the Own Trade Lock Box along with the associated paperwork will be turned into appropriate permit coordinator office for reissue along with the permit
 - The Lock Box shall be secured with a uniquely number car seal to maintain the Isolation integrity

6.8 Confined Space Entry

- ISSoW confined space entry permit must be obtained for all confined space entries.
- Whenever personnel are required to enter a confined space, all of the connecting piping to that space must be isolated by positive isolation. The only acceptable means of positive isolation for confined space entry is separation of the piping (dropping a spool piece), blanking the end of the pipe to the vessel or blinding the pipe to the vessel.

6.9 Removing Car Seals

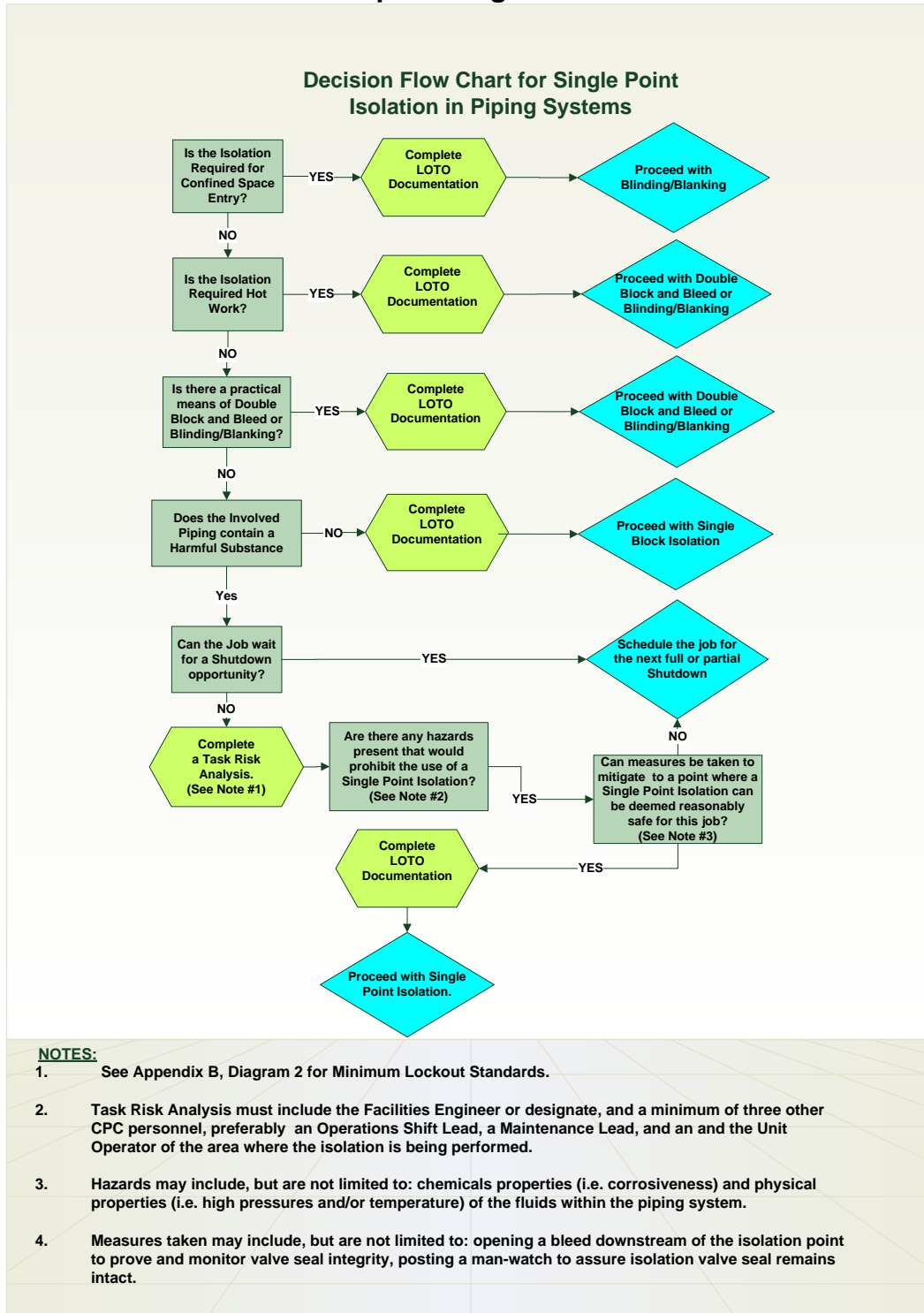
- Isolations may require opening or closing valves that are car sealed in their normal position. The removal of car seals must be done in accordance with the SSOP "Car Seal Procedure Installation and Removal CPS-OLS-OPS-PRC-7203", and "Bypassing Safety Shutdown Devices CPC-OLS-HSE-PRC-7021".

6.10 Long Term Isolations

- Any isolation that remains in place longer than 90 days becomes a long term isolation and must be audited for effectiveness and necessity.
- Long term isolations must be re-audited every 90 days until the isolation is removed.
- The 90 day period may be extended with authorization from the Operations Manager/Startup Operations Manager.
- All long term isolated equipment should be considered for decommissioning or re-instatement.
- Leads will check the Requires Re-validation list minimally once a rotation for overdue isolations.
- Print overdue Isolation Certificates for use during the re-validation process.
- Operations will perform re-validation using the [Long term Isolation Audit Checklist \(SUR-A0A-GE-00-ORF-0001\)](#).
- After the re-validation the operator will electronically sign the isolation certificate in ISSoW.
- A post re-validation meeting between the operator and the team lead is encouraged to discuss whether or not this isolation can be removed and steps to take to remove the isolation.

7 Appendix A – Diagrams

Decision Map for Single Point Isolation



Process Isolation Standard

△ Note: This document will guide operations as to whether we need a Variable Risk Assessment performed for isolations or not. It also guides operations and maintenance on what an acceptable level of isolation is.



Process Isolation Standard




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OIL SANDS ENGINEERING STANDARDS & PROCEDURES

PROCESS ISOLATION STANDARD OF EQUIPMENT & PIPING: EVALUATION AND BASIS

Document No.

ALL-A0A-GE-00-MST-0004

Rev.	Date	Issued for	Originator	Reviewed by	Approval
0	Aug. 25/15	Review	 Bob Stubbs FE Manager	 Ed Connelly VP OS Operations	 Peter Berkenpas SVP Oil Sands

8 Appendix B – Photos

1) Lock Sets



2) Lock Box

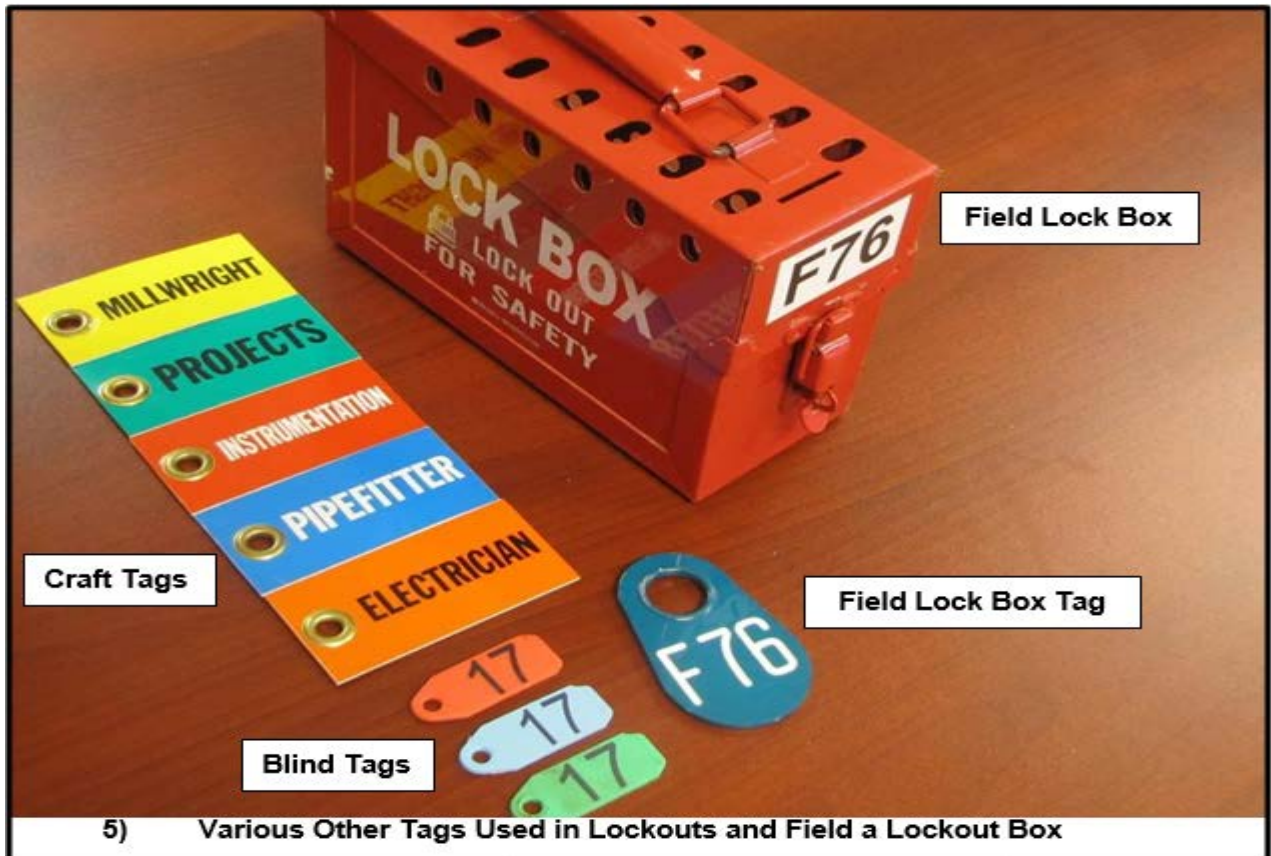


3) Personal Lock and Tag



4)

PROCESS ISOLATION ID TAG <h1>100097</h1>				POSITIVE ISOLATION ID TAG <h1>100098</h1>			
Controlling Authority UNIT 700 GAS T	Isolation Certificate IC0000016392	Tag Print Date 1 Jan 2015	Seq.no 1	Controlling Authority UNIT 700 GAS T	Isolation Certificate IC0000016392	Tag Print Date 1 Jan 2015	Seq.no 2
IP: SUR-0103-HV13106 HV PW FROM 0045 TO T302				Location Description HV PW FROM 0045 TO T302			
Equip ref: SUR-0103-S06 -97HV03				Lock No/Isolation Status: / Blind Closed			
Lock No/Isolation Status: 1EW45 / Locked closed				comment on tag, Inlet side			
ELECTRICAL ISOLATION ID TAG <h1>100099</h1>				WARNING THIS EQUIPMENT IS OUT OF SERVICE CONTACT OPERATIONS FOR DETAIL			
Controlling Authority UNIT 700 GAS T	Isolation Certificate IC0000016392	Tag Print Date 1 Jan 2015	Seq.no 3	EQUIPMENT NO: _____			
IP: sparky 1				REASON: _____			
Equip ref: _____				DATE: _____ SIG: _____			
Lock No/Isolation Status: 1 / Electrically Isolated & Locked							



5) Various Other Tags Used in Lockouts and Field a Lockout Box

6) Lighting Panel Lockout Equipment

6) Lighting Panel Lockout Equipment

