

SAFE-PASS



Municipal Safety Manual

**Applied methods for training Public Works Supervisors
in Identification and Communication of work hazards**

**S. Robert Filer, P.E., M.S., LL.B.
Scott R. Filer, M.P.H., M.B.A.**

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INSTRUCTIONS:

Greetings Municipal Manager;

This manual includes a systematic approach to obtaining construction and maintenance work safety that can be used as your **MUNICIPALITIES SAFETY POLICY**. Place a copy of this manual in a large three ring binder and add your municipality specific safety procedures. Chapter 1 identifies procedures that are commonly considered to be municipality specific.

Make copies of **IDENTIFIED RISK TABLES (FORMS LOCATED PAGE 112)** and use them to make daily clip board construction and maintenance job hazard assessments (AKA Safety Audits). After making an assessment, compare your findings to the color coded Special Safety Permits and Procedure defaults listed in this manual.

Make copies of **MISSING STATUS TABLES (FORMS LOCATED PAGE 115)** and use them to make daily clip board construction and maintenance job hazard assessments (AKA Safety Audits). Missing Status Tables identify missing procedures needed to improve safety and complete the project.

The **MUNICIPAL SAFETY POLICY (LOCATED ON PAGE 110)** reflects the contract document normally attached to a contractors purchase order to assure they have an understanding of your municipality's intent to provide a safe work environment.

Remember that creating a safe work environment is everyone's job, and it's a thankless effort. Workers seldom appreciate the fact that you have implemented procedures that Identify and Communicate Job related hazards that reduce accidents and assure them of going home to their families.

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PREFACE:

The function of this manual is to train public works supervisors in the identification and communication of work related hazards. It treats municipal issues involving employee safety and health, environmental, security and asset protection in a broad brush approach supporting the best health and safety practices found within most governing authorities:

- **Australia, OHS, National Standard for Construction Work**
- **AS/NZS4360:2004 Risk Management**
- **Canadian, CCOHS**
- **Great Britain, Health HSC**
- **India, OHSC**
- **Republic of South Africa, OHS**
- **United States of America, OSHA**

This manual identifies twenty-four normally applied **“SPECIAL SAFETY PERMITS AND PROCEDURES”** that municipalities should consider before implementing construction and maintenance projects involving:

- **Administration Buildings**
- **Potable Water Supply and Distribution Systems**
- **Waste and Storm Water Collection Systems**
- **Water Treatment Facilities**
- **Street and Highway Repair**
- **Forestry and Grounds**

This manual also includes **“IDENTIFIED RISK TABLES”** and **“MISSING STATUS TABLES”** that provide a systematic approach to identifying hazards when making field safety assessments or audits. IDENTIFIED RISK TABLES include color coded “DEFAULTS” that identify “SPECIAL SAFETY PERMITS AND PROCEDURES”. MISSING STATUS TABLES identify missing safety and construction procedures. This manual can be used to support Safe-Pass Municipal Safety Software or making manual safety audits by copying tables and checking the field condition boxes that identify work hazards.

This manual was developed as a guide for furthering the wellbeing of workers providing municipality related services for hire. It includes materials that are dependent upon user interpretations of changing application sensitive working conditions, and is provided **FOR REFERENCE ONLY.**

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Chapter 1: DEFINING MUNICIPAL RISK



1.1 OVERVIEW:

Municipal work related risk is defined as the combination of the likelihood that an accident or negative event will occur and its potential severity. Like most industries, municipalities seek to safeguard employees from injury, and when risks are discovered they are seldom ignored. The problem is risks can be hard to identify, and if they are identified, they are not always communicated to responsible decision makers in time to prevent critical incidents.

1.2 CRITICAL INCIDENTS:

Being prepared for disasters (AKA “Emergency Preparedness”) is the action taken to limit loss before and/or after an event occurs that negatively impacts Worker Safety, Public Health, Environment, Security and/or Assets. These events can be either NATURAL (tornados and floods) or CRITICAL INCIDENT (Industrial or municipal mishaps). Methods used to identify and control municipal critical incidents include:

- **MITIGATION**
- **SAFE WORK PLANNING**
- **RESPONSE**
- **RECOVERY**

1.3 MITIGATION:

Work situations that become critical incidents normally present higher risk. The mitigation process focuses on (a) Identifying the municipal work that presents higher risk, and (b) Communicating identified risks to first responders and decision makers. Municipal critical incident averages include:

- 41% Transportation related (typical to road repair)
- 17% Contact with objects or equipment (typical to electrocution and chainsaw accidents)
- 15% Falling related (caused by missing personal protection equipment for high work)
- 12% Chemical/Environmental Exposure (typical to confined space entry and excavation)
- 9% Fires or Explosions (typically caused by missing hot work permit)
- 6% Co-worker interaction and/or negligence (zero tolerance for drugs and alcohol)

1.4 SAFE WORK PLANNING:

Safe Work Planning is the exercise of avoiding and limiting the impact of critical incidents. Once the potential for a critical incident has been identified, it’s communicated to decision makers who plan and execute one or more of the following pro-active measures:

- REMOVING WORK HAZARDS FROM LOCATION.
- SUBSTITUTING – to reduce hazard impact or eliminate hazard.
- APPLYING ENGINEERING CONTROLS- change physical parameters.

- APPLYING ADMINISTRATIVE CONTROLS – including: (a) adding Special Permits and Procedures, (b) improving Equipment Safety Conditions and (c) providing Safety Training.
- USING PERSONAL PROTECTIVE EQUIPMENT (PPE) – using worker protection equipment that lowers risk by allowing tasks to be completed more safely.

1.5 SPECIAL SAFETY PERMITS AND PROCEDURES:

Special Safety Permits represent an established method for reducing job related hazards for most industries. Procedures often vary by municipality and include (MUNICIPALITY SPECIFIC) management policies normally evolved over time. This manual includes RISK TABLES that provide a systematic approach to identifying common Special Safety Permits and Procedures that should be considered before starting work.

1) ADMINISTRATIVE REVIEWS	(Municipality specific)
2) BIO-HAZARD PROCEDURES	(Municipality specific)
3) CAN-NOT VERIFY PROCEDURES	(Municipality specific)
4) CHEMICAL HANDLING PROCEDURES	(Chapter 15)
5) CONFINED SPACE ENTRY PERMITTING	(Chapter 7)
6) CRITICAL LIFT PERMITTING	(Chapter 12)
7) ELECTRICAL LOCKOUT/TAGOUT	(Chapter 2)
8) ENGINEERING APPROVALS	(Municipality specific)
9) ENVIRONMENTAL PROCEDURES	(Chapter 9)
10) ENVIRONMENTAL SPECIFIC PPE	(Municipality specific)
11) EQUIPMENT SAFE WORK PLAN	(Chapter 4)
12) EXCAVATION PERMITTING	(Chapter 8)
13) FALL PREVENTION PLANNING	(Chapter 10)
14) HIGH HAZARD REVIEWS	(Municipality specific)
15) HOT WORK PERMITTING	(Chapter 11)
16) MECHANICAL LOCKOUT/TAGOUT	(Chapter 3)
17) RADIATION LOCKOUT/TAGOUT	(Chapter 18)
18) SECURITY CONTROL PROCEDURES	(Municipality specific)
19) SEVERE WEATHER PROCEDURES	(Municipality specific)
20) STANDARD PPE	(Municipality specific)
21) SUPERVISORY REVIEWS	(Municipality specific)
22) TANK CLEANING PROCEDURES	(Chapter 16)
23) TRAFFIC CONTROL PROCEDURES	(Chapter 14)
24) FORESTRY AND GROUNDS PROCEDURES	(Chapter 17)

1.6 MUNICIPALITY SPECIFIC POLICIES:

Most municipalities have implemented safety policies influenced by their own unique governing authorities, facilities infrastructure and even politics. These policies often include:

- 1) Administrative human resource policies typical to zero tolerance for drugs and alcohol
- 2) Governmental specific procedures involving bio-hazards and lab work
- 3) Who to contact when work parameters cannot be verified
- 8) Use of staff engineers or outside consultants
- 10) Specific field equipment needed to support workers (Environmental PPE)
- 14) City methods for evaluating and reducing high hazards

- 18) Who to call for security problems
- 19) Severe weather procedures considering infrastructure and support services
- 20) Cities standard equipment to be worn by workers (PPE)
- 21) When supervisors are required to make a review.

1.7 TRAINING:

Training Staff and First Responders is a key element in reducing municipal critical incidents. Safety training should be related to the actual job working conditions.

TRAINING STAFF –

Public Works Employers have a responsibility to instruct each employee in the recognition and avoidance of unsafe conditions applicable to his or her work environment. Public Works Employers also have the responsibility to control or eliminate any job related hazards creating illness or injury. The degree of employee safety training should be determined by the risk to the employee. It should include but not be limited to commonly practiced municipal work safety procedures involving:

- **ELECTRICAL LOCKOUT/TAGOUT**
- **MECHANICAL LOCKOUT/TAGOUT**
- **EQUIPMENT SAFE WORK PLANNING**
- **CONFINED SPACE ENTRY**
- **EXCAVATION AND TRENCHING**
- **FALL PREVENTION PLANNING**
- **HOT WORK PERMITTING**
- **CRITICAL LIFT PERMITTING**
- **TRAFFIC CONTROL PLANNING**
- **CHEMICAL HANDLING PROCEDURES**
- **TANK OPERATION AND CLEANING**
- **TREE TRIMMING AND WOOD CHIPPING**
- **MUNICIPAL NUCLEAR DENSITY GAUGE AND X-RAY EQUIPMENT (If applicable)**
- **BASIC FIRST AID AND CARDIOPULMONARY RESUSCITATION (CPR).**

TRAINING FIRST RESPONDERS –

Public Works should partner with Local emergency rescue teams to assist them in obtaining the training needed to perform rescue functions. Rescue training functions should include making simulated confined space rescues using openings whose size, configuration, and accessibility closely approximate those typically accessed by Public Works.

DOCUMENTATION –

Public Works Supervisors should document safety training. Documentation should include subject, training date, duration, names of instructors and a sign in sheet. This documentation should be retained as public record.

FIRE GUARD CHECK LIST -The municipality should work with Municipal Fire and Rescue First Responders to develop a site specific FIRE GUARD CHECK LIST. This list is intended to link potential (municipality specific) work related hazards with First Responder training and equipment suited for emergency tasks and locations specific to the municipality. (BLANK FORM LOCATED PAGE 131)

FIRE GUARD CHECK LIST		
TRAINING LOCATION: _____		TRAINING DATE: _____
Public Works Department: _____		
P.W. Training Coordinator: _____		Phone: _____
Fire Department Coordinator: _____		Phone: _____
Training Description: _____		
GENERAL	Joint Training Effort - Check all areas that apply: 1) Have necessary training. 2) Wear fire fighting PPE. 3) Use fire fighting and rescue vehicles suited for plant. 4) Stay focused - do not take active part in other work.	X
COMMUNICATIONS	1) Radio / telephone access to all municipal areas. 2) SAFE-PASS Safe Work Permit (e-mail notification). 3) Communications established with municipal fire department. 4) Have established STOP WORK / EVACUATE warning system.	
EMERGENCY RESPONSE/ PREPARATIONS	HOT WORK AREAS: 1) Establish emergency routes to hot work areas. 2) Provide fire extinguishers suited for HOT WORK. 3) Check sprinkler and/or deluge systems 4) Locate fire hydrant, hoses (confirm operable). 5) Establish access to electrical shut off(s). 6) Establish access to gas shut off(s). 7) Provide tested gas detector (stop work if alarm) 8) Enshure area is clear of flammable materials' 9) Review escape routes/ assembly areas with workers.	
	CONFINED SPACE AREAS: 1) Establish emergency routes to confined space areas. 2) Provide tested portable oxygen detector (no entry on alarm). 3) Provide air packs and equipment suited for rescue. 4) Review escape procedures with attendants and entrants.	
	CHEMICAL HANDLING AREAS: 1) Establish emergency routes to chemical areas. 2) Have understanding of MSDS for chemicals in area and provide chemical PPE as required. 3) Using MSDS determine methods required for rescue.	
FIRE CONDITION	1) Sound alarm and evacuate area. 2) Provide life saving services without exposure to harm. 3) Switch off energy sources. 4) Remove gas containers from area. 5) Start firefighting efforts including cooling tanks / buildings.	

1.8 RESPONSE:

Municipalities should notify first responders of potential hazards derived from IDENTIFIED RISK TABLES, MISSING STATUS TABLES, and WORK ORDER NUMBERS to fast-track response. Notifications should include work order numbers, and work orders should be made accessible via computer to identify work type and location. This allows first responder's time to plan driving routes to job site, and to accumulate life saving equipment fitting the hazards. Common Public Works tasks imposing hazards include:

WATER PRODUCTION AND DISTRIBUTION (Pump in systems)

Water comes from wells, rivers, lakes or is obtained from a pipeline service provider. Water production includes filtration and softener systems, reservoirs, booster pumps, elevated tanks and telemetry controlling pumps to maintain grid pressure. Water distribution is the grid of water mains attaching residential and commercial connections. It includes the residential, commercial and industrial lines often equipped with back flow preventers and the metering systems.

SANITARY AND STORM SEWER COLLECTION -

Sewer lines with manholes feed into waste water treatment facilities. Lift stations are used if elevations prohibit gravity flow to the treatment facility. Storm water sewers normally divert water into lakes or rivers and away from costly water treatment.

LIFT STATIONS (Pump out systems)-

The two basic types of lift stations include: (a) a dry well concept that includes below grade pumps, starters, controls and ventilation system, and (b) a fenced in area housing above ground (or submersible) pumps, starters and controls. Pumps operate on floats or bubbler pressure switches.

WATER TREATMENT FACILITIES -

Treatment plant process equipment is usually defined by influent parameters, and includes the instrumentation and controls required for plant operation and regulatory agency reporting.

ELECTRICAL -

Municipal electrical equipment includes switch gear, transformers, generators, motor control centers, stand alone motor starters, power panels, lighting panels and control panels.

FORESTRY AND GROUNDS -

Forestry and grounds include high hazard chainsaws, wood chippers and mowing equipment.

STREETS AND HIGHWAYS -

Equipment used for controlling vehicle and pedestrian traffic is often divided into in-plant maintenance and construction projects and street and highway repair.

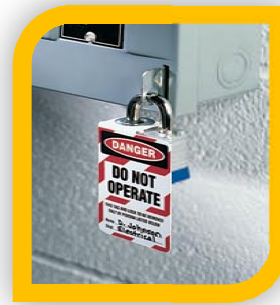
BUILDINGS -

Administration buildings, shops and garages include heating and air handling systems, water systems, shop equipment, city vehicles, and chemical and gas storage areas.

1.9 RECOVERY:

Municipalities should develop a recovery plan that addresses both immediate and long-term needs of staff and infrastructure. The recovery phase provides the best opportunity to overcome cost concerns and timing is essential to restoring the infrastructure needed to provide public services. A speedy damage assessment is needed to evaluate structural damage and equipment loss.

Chapter 2: ELECTRICAL LOCKOUT / TAGOUT (LOTO)



2.1 OVERVIEW:

The following serves to assist Public Works Supervisors in recognizing conditions that impact worker health and safety while performing CONTROL MEASURES for electrical isolation of equipment (Work Electrical LOTO procedures with Chapter 4 “SAFE WORK PLANNING” Energy Control).

ELECTRICAL LOCKOUT/TAGOUT -

Electrical LOTO is the specific control of electrical energy having 50 volts or more to ground used to operate equipment (AKA Machinery). Electrical Lockout/Tagout procedures represent the minimum requirements for controlling hazardous electrical energy whenever maintenance or repairs are done to equipment. It is intended to avert unexpected energizing of equipment.

2.2 RESPONSIBILITY:

To establish safe practice, the municipality should (a) establish a LOCKOUT / TAGOUT ACTIVITY LOG, (b) provide documented employee safety training, and (c) make periodic safety inspections.

The ACTIVITY LOG is used to record each time a lockout/Tagout procedure is used. This log references the SAFE WORK PLAN and ENERGY CONTROL PLAN documenting the equipment isolation methods. It is recommended that the task of locking out equipment be delegated to a qualified person, usually a supervisor.

AFFECTED EMPLOYEE -

An employee whose job requires him or her to operate or use equipment on which servicing or maintenance is being performed under lockout or Tagout, or whose job requires him or her to work in an area in which such servicing or maintenance is being performed.

AUTHORIZED EMPLOYEE -

An authorized employee is a person who implements a Lockout or Tagout procedure to perform maintenance. An authorized employee and an affected employee may be the same person when the affected employee's duties include performing maintenance on equipment.

QUALIFIED PERSON (AKA ELECTRICIAN) -

A Qualified Person is usually a trained electrician experienced in electrical codes, safe practices and permitted to work on exposed energized equipment. Electrical safe practices training should include:

- Able to distinguish exposed live parts
- Determine normal voltage
- Be able to distinguish approach clearance distances including:

300V and less	Avoid Contact
Over 300V, but less than 750V	1 foot, 0 inches (30.5 cm.)
Over 750V, but less than 2kV	1 foot, 6 inches (46 cm.)
Over 2kV, but less than 15kV	2 feet, 0 inches (61 cm.)
Over 15kV, but less than 37kV	3 feet, 0 inches (91 cm.)
Over 37kV, but less than 87.5kV	3 feet, 6 inches (107 cm.)
Over 87.5kV, but less than 121kV	4 feet, 0 inches (122 cm.)
Over 121kV, but less than 140kV	4 feet, 6 inches (137 cm.)

2.3 ELECTRICAL LOCKOUT/TAGOUT PROCEDURES:

Electrical Lockout/Tagout procedures include:

TASK DESCRIPTION–

Task description should be as defined within the Work Order. It should describe the activity requiring electrical Lockout/Tagout (maintenance or construction related replacement). The description should include equipment name, tag number, location and any known hazards.

PREPARING FOR SHUTDOWN –

Authorized employees should identify the hazards and energy controls needed before starting work. Authorized employees shall notify staff (affected employees) of equipment to be shutdown. Notification should include equipment name, tag number and location. A WORK IN PROGRESS - Lockout/Tagout notice should be posted on the equipment.

IDENTIFY EQUIPMENT REQUIRING ISOLATION –

Review Piping and Instrumentation (PID) drawings and electrical schematics to determine alternative energy sources. It's common for motor starters to have contacts supplying remote run and off signals powered from a remote enclosure providing run status.

APPLY LOCKOUT/TAGOUT DEVICES –

Shutdown the equipment and Install lockout devices as required for safely isolating the equipment in the de-energized state. If Lockout devices cannot be used, apply Tagout methods.

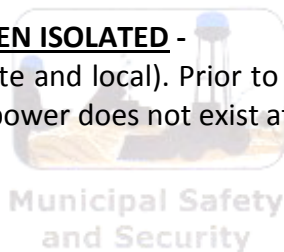
VERIFY THAT THE EQUIPMENT HAS BEEN ISOLATED -

Attempt to start the equipment (remote and local). Prior to working on the equipment, use a Volt-Ohm-Meter (VOM) to verify electrical power does not exist at motor or control circuits.

2.3 ELECTRICAL DEFINITIONS:

CAPABLE OF BEING LOCKED OUT-

An energy isolating device will be considered to be capable of being locked out if it is designed with a hasp or other attachment through which, a lock can be affixed. Other energy isolating devices will also be considered to be capable of being locked out, if the lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.



ELECTRICAL ENERGY ISOLATING DEVICE -

A mechanical device that physically prevents transmission or release of energy including:

- A manually operated electrical circuit breaker
- A disconnect switch
- A manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply and no phase can be operated independently. Energy Isolating Devices do not include push buttons, selector switches, alarm relays and other control circuit devices.

ENERGY SOURCE -

Any source of kinetic or potential energy, including but not limited to electrical, mechanical, hydraulic, pneumatic, chemical, and/or thermal energy.

ENERGIZED -

Connected to an energy source or containing residual or stored energy.

GFIC PROTECTION -

GFIC's are a device providing line-to-ground protection from shock hazard. GFIC's are used for all work within wet or damp areas in contact with earth or grounded conductive surfaces.

GROUNDING -

Electric tools are either two prongs insulated, or three prongs grounded. Grounded tools having a cut off ground prong should not be used. Grounded tools should never be used with two prong outlets and an adapter for bypassing grounding.

HAZARDS (ELECTRICAL) –

Electrical exposures include direct work on power lines, making electrical equipment hookups, working on disconnect switches, within motor control centers, power panels and lighting panels.

HAZARDS (MECHANICAL) –

A mechanical hazard includes exposure to municipal equipment whose operation will create a hazardous condition. Exposure includes: repairs, adjustments, and/or maintenance. Equipment is typical to bar screens, grinders, raw sewage pumps, clarifier drives, supply air blowers, transfer pumps, sludge pumps, digesters, boilers, gas compressors, well pumps, high service pumps, lift station pumps, etc.

HAZARDS (PROCESS) –

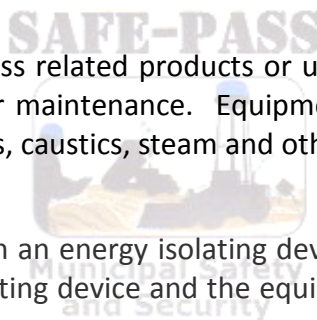
Exposure to equipment whose process related products or utilities will create hazards. Exposures include: repairs, adjustments, and/or maintenance. Equipment is typical to pumps, boilers, pipelines and tanks. Hazards include acids, caustics, steam and other harmful liquids and gases.

LOCKOUT -

The placement of a lockout device on an energy isolating device in accordance with an established procedure to ensure the energy isolating device and the equipment being controlled cannot be operated.

LOCKOUT DEVICE –

A device that utilizes a positive means, such as a key or combination lock to hold an energy isolating device in the safe position, and to prevent the energizing of equipment.



RED CONCRETE REMOVAL -

Depending on codes, red concrete is used to identify buried electrical power conduits and cables. Special procedures and permits need to be in place to prevent electrocution when excavating.

SERVICING (AKA MAINTENANCE)-

Constructing, installing, setting up, adjusting, and maintaining equipment. These activities include lubrication, cleaning or un-jamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected start-up of the equipment or release of hazardous energy.

TAGOUT –

Tagout includes the established procedure of placing a Tagout device on an energy-isolating device to indicate that the energy isolating device (equipment being worked on) may not be operated until the Tagout device is removed.

TAGOUT DEVICE –

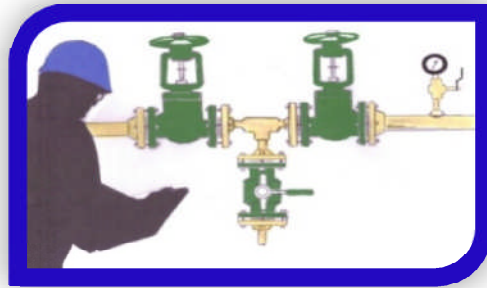
Tagout Device is a prominent warning device (typical to a tag having a means of attachment), which can be securely fastened to an energy isolating device in accordance with an established plant procedure.

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**Municipal Safety
and Security**

Chapter 3: MECHANICAL LOCKOUT / TAGOUT (LOTO)



3.1 OVERVIEW:

The following serves to assist Public Works Supervisors in recognizing conditions that impact worker health and safety while performing CONTROL MEASURES requiring mechanical isolation for removal or maintenance of municipal equipment (Work Mechanical LOTO Procedures with Chapter 4 “SAFE WORK PLANNING” Energy Control).

This procedure establishes the minimum mechanical requirements for controlling hazardous energy whenever maintenance or repairs are being performed on equipment (AKA Machinery). It is also used to ensure equipment has been stopped and isolated from all potentially hazardous energy sources, and has been locked out prior to employees performing service or maintenance.

Mechanical LOTO (Lockout/Tagout) is intended to avert unexpected release of stored energy. It normally includes the physical seal off procedures required for isolating equipment process lines or tanks that can release fluids or gasses. Mechanical LOTO also includes the use of key blocks, self-locking fasteners, wedges, adapter pins, chains and other bracing or supporting methods as needed to limit equipment movement.

3.2 PROCESS ISOLATION:

Process Isolation includes (a) isolating, (b) depressurizing and (c) removing process fluids and gasses from lines and equipment before work can commence. Process isolation requires:

- a) An approved isolation plan (Reference Chapter 4.0 “ENERGY CONTROL PLAN”)
- b) An approved working environment permit in the event there is a release of
 - HYDROCARBONS (METHANE)
 - CHEMICALS CLASSIFIED AS TOXIC, CORROSIVE, HAZARDOUS TO HEALTH
 - CHEMICALS CLASSIFIED AS ALLERGENIC OR CARCINOGENIC

3.3 MECHANICAL ISOLATION:

Mechanical isolation should be performed as close as possible to the tank or work site, and all connections must be mechanically blinded when isolating tanks, containers, etc. Note that standpipes may contain condensate or hazardous chemicals that can represent a risk. In such cases they must be isolated from the container through blinding. Blinds installed as part of the isolation process must have the same pressure class as the pipes/ equipment to which they are connected. When removing pipe spools or equipment, open flanges must be mechanically blinded, and free-standing pipes properly secured.

MECHANICAL BLINDING -

Mechanical Blinding is used to open systems containing extremely toxic gas (H₂S, etc.), hot work on hydrocarbon-bearing systems connected to pressurized facilities in operation, entry into tanks and enclosed spaces, opening of process equipment and systems that can generate an offsite discharge (typical to release into atmosphere or discharge into stream, river or lake).

DOUBLE BLOCK AND BLEED -

Opening of chemical-bearing systems connected to facilities with a maximum pressure support of more than 10 barg (145 psig), when the work site is not left. The maximum pressure support shall be based on all energy sources upstream, downstream, internally and externally. To work inside a tank, the valve to the process line feeding the tank is locked closed. The valve discharging the tank is locked open to drain the tank. When the tank is drained, the discharge valve is locked closed if the potential for liquid or vapor back feed exists.

SINGLE MANUAL BLOCK VALVE -

A Single Manual Block Valve can be used for operational isolation instead of mechanical blinding, provided the system is depressurized. Control valves, pressure safety valves (PSV) and check valves should not be considered as single valves for isolation. Manual Block Valves should be secured with chains, wire locks, etc. so that hand wheels / handles cannot be operated (Plastic strips are unacceptable). If this is not possible, the hand wheels or handles should be removed.

MODULATING CONTROL VALVE (PNEUMATIC DIAPHRAGM OPEN / SPRING FAIL CLOSE) -

Disconnect 4-20 MADC signal wiring and Open air line feeding the I/P transducer and bleed air from diaphragm allowing spring to close valve. Tag valve failed closed – rendered inoperable for blinding secondary safety support.

MODULATING CONTROL VALVE (PNEUMATIC DIAPHRAGM CLOSE / SPRING FAIL OPEN) -

Operations need to close valve. Do not use fail open valve as an isolating primary or secondary device. Tag valve - operations closed for non-qualified blinding back-up only.

MODULATING ELECTRIC OPERATED VALVE (FAIL VALVE IN LAST POSITION) -

Operations close valve. Disconnect power wiring to valve or lock out disconnect switch. Tag valve closed and rendered inoperable for blinding secondary safety support

BLOCK VALVE (SOLENOID OPERATED PNEUMATIC CYLINDER OPEN / SPRING FAIL VALVE CLOSE)-

Disconnect on/off signal wires to Solenoid. Disconnect air line feeding valve, allowing spring to close valve. Tag valve - failed close rendered inoperable for blinding secondary safety support

BLOCK VALVE (SOLENOID OPERATED PNEUMATIC CYLINDER CLOSE / SPRING FAIL VALVE OPEN)-

Operations need to close valve. Do not use fail open valve as an isolating primary or secondary device. Tag valve - operations closed for non-qualified blinding back-up only.

BLOCK VALVE (DUAL SOLENOID OPERATED PNEUMATIC CYLINDERS – FAIL VALVE LAST POSITION)-

Operations need to close valve. Do not use valve as an isolating primary or secondary device. Tag valve - operations closed for non-qualified blinding back-up only.

OUTSIDE CONTRACTORS -

Municipalities should consider (as normal practice) having staff provide Lockout/Tagout procedures on equipment serviced by outside contractors. This assures city safety procedures are met.