



**Chapter 4:
Safe Work Procedures**

Chapter Content

CHAPTER CONTENT.....	4.1
4.1 GRADING GRAVEL SURFACES.....	4.3
4.2 OPERATION OF GRADERS.....	4.6
4.3 OPERATION OF PACKERS.....	4.8
4.4 OPERATION AND MAINTENANCE OF EARTHWORK EQUIPMENT (SWING TYPE).....	4.11
4.5 OPERATION AND MAINTENANCE OF EARTHWORK EQUIPMENT (NON-SWING TYPE).....	4.26
4.6 EXCAVATIONS / TRENCHES & GROUND DISTURBANCE	4.39
4.7 STABILIZING OR EXCAVATING AROUND BURIED UTILITIES	4.44
4.8 WORKING NEAR OVERHEAD POWER LINES.....	4.48
4.9 GROUNDING PROCEDURES FOR CEMENT SPREADER TRUCKS AND BULKER TRAILERS	4.52
4.10 CLEANING WATER NOZZLES.....	4.54
4.11 OPERATION AND MAINTENANCE OF THE TRAFFIC CONTROL ZONE.....	4.56
4.12 VIBRATORY ASPHALT ROLLERS	4.62
4.13 PAVING	4.65
4.14 SCREED OPERATION.....	4.68
4.15 ASPHALT RAKING	4.72
4.16 LIGHTING OF TAR KETTLE.....	4.74
4.17 CRACK FILLING.....	4.77
4.18 WORKING AROUND GOMACO.....	4.80
4.19 GOMACO OPERATION	4.84
4.20 GUIDEPOSTS	4.86
4.21 WORKSITE CHEMICAL SPILL REPORTING.....	4.88
4.22 CHEMICAL VEGETATION CONTROL.....	4.91
4.23 OPERATION OF CHIPPER OR MULCHER.....	4.94
4.24 TOWING COMPRESSOR / TRAILERS	4.97
4.25 PLANNED LIFTS AND SUSPENDED LOADS (HOISTING AND RIGGING).....	4.99
4.26 BACKING UP PROCEDURE.....	4.103
4.27 WHEEL LOADER.....	4.105
4.28 POWER LOSS ON A STEEP GRADE	4.108
4.29 MOUNTING / DISMOUNTING EQUIPMENT.....	4.110
4.30 AIR BRAKE ADJUSTMENT	4.112
4.31 EMERGENCY PROCEDURES FOR PORTABLE GAUGES.....	4.115

4.32	TIRE INFLATION PROCEDURE	4.118
4.33	WELDING & BURNING/CUTTING.....	4.120
4.34	CONFINED SPACE ENTRY PROCEDURE	4.123
4.35	LOCKOUT PROCEDURES (SEE CONTROL OF HAZERDOUS ENERGY).....	4.135
4.36	ENTERING FEED BINS	4.139
4.37	LOCKOUT PROCEDURE FOR RECYCLE HOPPER (BIN #9)	4.141
4.38	CONFINED SPACE ENTRY FEED BINS	4.143
4.39	OPENING AND CLOSING THE GRIZZLY ON RECYCLE BIN	4.146
4.40	RAW MATERIALS STOCKPILING & REMOVAL.....	4.149
4.41	TAR LOADING.....	4.152
4.42	ASPHALT CEMENT SAMPLING PROCEDURES	4.154
4.43	IGNITION OVEN (ASPHALT LABORATORY).....	4.158
4.44	CORING PROCEDURE	4.160
4.45	LOCKOUT PROCEDURE FOR MOBILE MAINTENANCE EQUIPMENT.....	4.162
4.46	CONTROL OF HAZARDOUS ENERGY.....	4.164

4.1 Grading Gravel Surfaces

Purpose



The inherent hazards of grading gravel surfaces are those related to working with and around mobile equipment, working on sloping terrain, being exposed to the driving public and working alone. All personnel involved in such operations must be aware of the following procedures.

The purpose of this procedure is to provide personnel with safe working procedures when grading gravel surfaces.

Scope

The following procedures are to be used by all employees when grading gravel surfaces.

References

-  Alberta Transportation Highway Maintenance Specification, Version 3, May 2000
-  Alberta Transportation Traffic Accommodation in Work Zones, 2nd Edition, May 2001

Special Terms

CSA..... CANADIAN STANDARDS ASSOCIATION
PPE..... PERSONAL PROTECTIVE EQUIPMENT
SOP..... STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Personal Protective Equipment

- Vest
- CSA Approved, Grade 1, Steel-toed boots
- Eye Protection
- Hearing Protection

Potential health or Safety Concerns

- Working on sloping terrain
- Exposure to driving public
- Working alone
- Dusty conditions
- Poor visibility due to darkness

Recommended Procedures and Precautions to Offset Hazards

- Before roading or loading the grader, the operator will perform an inspection to ensure adequate warning devices are installed.
- Whether the grader is driven or hauled to the worksite, en route concerns should be discussed with the Foreman, including any permit requirements.
- If the grader is to be loaded onto a trailer, this must only be done with the trailer on a level surface. Where possible, the operator will drive the unit onto the trailer while the truck driver acts as spotter. Securing of the load is the responsibility of the truck driver.
- Once on site, an assessment tour must be conducted to determine what hazardous conditions are present. If there is more than one member of the grading crew, a tailgate meeting will be held to discuss controlling of the identified hazards: e.g. placing signs warning of overhead power lines.
- If the grader was hauled to the work site, offloading should be off road where possible and with responsibilities similar to those when the grader was loaded.
- No grading work will take place until the work zone is signed as per the specifications applicable. The specific signs are listed for Alberta Transportation in their Traffic Accommodation Manual.
- All grader operators must wear the seat belt provided in the unit. If work must be done in the standing position, the cab door must be kept closed and, where

this is not possible, the restraining chain must be secured across the door opening.

- Respiratory protection from road dust must be considered if the grader is operated for an extended length of time with the door open.
- On steep slopes, the operator must be extremely cautious working near the shoulder, must reduce speed, and, again, be wearing a seat belt.
- Grading of gravel surfaces is normally only performed during daylight hours.
- Windrowed materials must leave room for a minimum of one lane of traffic through the zone.
- Back blading may be required to remove excess material from the edge of structures such as bridge decks, cattle guards and railroad crossings.
- Unloading any additional gravel at the work zone must be under the direction of a designated signaler.

NOTE: care must be taken to ensure the driver of the gravel truck responds to any hazards identified through the site-specific hazard assessment, i.e. power lines, etc.

- Graders will back up only when safe to do so and must turn around only where they are visible to other drivers for a considerable distance. Do not turn around when cresting a hill.
- Grader operators have access to a radio and/or telephone for summoning assistance if they experience problems while working alone.
- When exiting the machine or parking the grader overnight, the operator must find a level surface, ground the blade and set the parking brake.
- Upon return to the yard, the grader must be fueled, a post trip inspection carried out, and the grader parked in the proper area or structure.

4.2 Operation of Graders

Purpose

The purpose of this procedure is to provide guidelines for the safe operation of graders.


Scope

The following procedure applies to all employees operating graders.

References

 None

Distribution

 *See Issue Log in Safety Manual*

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Safe Operating Guidelines

1. Before equipment is started, walk around the machine. Visually inspect for oil leaks, low tires, vandalism, or any damage to the equipment. Advise supervisor of any abnormalities.
2. Mount and/or dismount the grader using 3 point mount/dismount method.
3. Operators are required to start their equipment prior to the start of their shift. Arrive early and allow for warm up.
4. Climb into the machine and be seated prior to starting the equipment. Start at idle speed. Check to see that all gauges are working and readings are normal, then climb out and inspect the lights.
5. Move equipment slowly forward and apply brakes to ensure they are working properly. Check to see that the back-up alarm is working. Report any concerns to your supervisor.
6. Due to poor visibility from the cab, be aware of all equipment, personnel, surveyors, slopes, banks, stakes, and survey markers on site and in general working area at all times.
7. Use good judgment during the operation of the grader.
8. Do not use the blade when stuck.
9. Do not blade in 4th gear or higher.
10. Apply brakes, lower all attachments and set the parking brake before getting off the equipment. Allow the equipment to cool off at the end of a shift prior to turning off the machine.
11. After parking the equipment at the end of a shift, walk around the machine. Visually inspect, again, for oil leaks, low tires, or damage. Advise supervisor of any problems.

4.3 Operation of Packers

Purpose

The purpose of this procedure is to provide safe operating guidelines for operating packers.


Scope

The following procedure applies to all employees operating packers.

References

 None

Distribution

 *See Issue Log in Safety Manual*

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Safe Operating Guidelines

1. Before equipment is started, walk around the machine. Visually inspect for oil leaks, low tires, vandalism, or any damage to equipment. Advise supervisor of any abnormalities.
2. Mount and/or dismount the packer utilizing the 3 point mount/dismount.
3. Operators are required to start their equipment prior to the start of their shift. Arrive early and allow for warm up.
4. Climb into the machine and be seated and buckle up prior to starting the equipment. Start at idle speed. Check to see that all gauges are working and readings are normal, then climb out and inspect lights.
5. Move equipment slowly forward and apply brakes to ensure they are working properly. Check to see that back up alarm is working. Report any concerns to your supervisor.
6. If the packer is equipped with a blade, before moving the packer check the operation of the blade by raising and lowering it.
7. Due to poor visibility when operating the packer, be aware of all equipment, personnel, surveyors, slopes, banks, stakes, and survey markers on site and in the general working area at all times.
8. Travel facing oncoming traffic, whenever possible.
9. Avoid sharp turns, particularly on rough or gravelly surfaces. Be sure to look first, even if turn is a minor one.
10. When traveling along slopes, NEVER make sharp turns. On a slope, a sharp turn can change the packer's center of gravity possibly causing a rollover.
11. On vibratory equipment, always shut off the vibrator prior to stopping and turn it on after the packer is in motion. NEVER have the vibrator on when the equipment is not in motion.
12. On packers with blades, carry the blade low to the ground when not actually engaging the ground.

13. In the event of a rollover, shut off the engine immediately and notify your supervisor.
14. Extreme care must be used in the operation of packers when compacting edges one meter in height or more. Packers should be at least 1.5 meters from the edge of any bank due to vibration.
15. Apply brakes, lower all attachments and set parking brake before getting off equipment. Allow the equipment to cool off at the end of a shift prior to turning off the engine.
16. After parking equipment at the end of a shift, walk around the machine. Visually inspect the packer, again, for oil leaks, low tires, or damage. Advise your supervisor of any problems.

4.4 Operation and Maintenance of Earthwork Equipment (Swing Type)

Purpose

The purpose of this procedure is to provide guidelines for the safe operation of earthwork equipment (swing type).

Scope

The following Safe Work Procedure is intended to establish standards of practice in the operation and maintenance of earthwork equipment (swing type) in use in the Province of Alberta, excluding mine and quarry operations.

These procedures are acceptable to the Occupational Health & Safety Division for the purpose of complying with requirements of the Occupational Health & Safety Act, or when a contractor, supplier, equipment owner or employer is required to establish a code of practice specifying safe working procedures in respect of earthwork equipment (swing type) operations.

These procedures are intended to be used in conjunction with the Occupational Health & Safety Act and pursuant regulations.

A printed copy of these procedures shall be kept as a part of the equipment log and operator's instructions at the work site where the equipment is operated.


Contractors, suppliers, equipment owners and employers of earthwork equipment (swing type) are required to begin implementation of these procedures as soon as possible. The procedures shall be fully implemented on January 1, 1985.

The conditions set forth in this document may, upon written request, be reviewed and are subject to revision.

References

-  OH&S Act Chapter 0-2
-  Electrical Protection Act

Distribution

-  *See Issue Log in Safety Manual*

Special Terms

- See Definitions SM4.7 (1)
- SOP..... STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Definitions

1. **Check** - compare with a predetermined standard or normal condition of operation.
2. **Earthwork Equipment (swing type)** - earthwork equipment used in the operation of earth removal and placement shall include draglines, gradalls, clamshell-equipped cranes, backhoes, shovels, pile drivers, augers, and all other similar types of machinery.
3. **Examine** - verify by visual and manual examination and by measurement and gauging of working and loaded components and surfaces, that the machinery or equipment is in a safe, satisfactory condition to do its job. Strip, dismantle, clean and take action as necessary to carry out the examination.
4. **Inspect** - verify that the machinery or equipment is in working order in so far as can be judged by visual examination, while if appropriate, the machinery is running normally or the equipment is operating.
5. **Non-destructive Test** - a procedure used to detect internal surface and concealed defects or flaws in materials using techniques that do not damage or destroy the items being tested.
6. **Operator** - a worker designated to control the equipment or machinery such that it safely performs the function for which it is intended on a project. An operator shall be either:
 - (a) An apprentice
 - i) Who enters into a contract of apprenticeship in accordance with Part 3 of the Manpower Development Act under which he is to receive from or through his employer instruction and continuous employment based on the amount of work available in the trade designated Heavy Equipment Operator (crane and hoist equipment).or
 - (b) A journeyman

- i) Who is the holder of a Certificate of Qualification for the trade of Heavy Equipment Operator (crane and hoist equipment)
or
 - ii) Who is, in the opinion of the Director of Apprenticeship and Certification, an experienced and skilled worker in the trade of Heavy Equipment Operator (crane and hoist equipment) whether or not the person holds a Certificate of Qualification for this trade.
7. **Project Supervisor/Superintendent** - Contractor's representative at the site who is responsible for continuous field supervision, co-ordination, completion of the work and the prevention of accidents with respect to the earthwork equipment (swing type).
8. **Supplier** - A person, who rents, leases, erects, installs or provides any earthwork equipment (swing type) or any parts or maintenance for such equipment in respect of a project or work site.
9. **Test** - carry out a procedure including, if appropriate, operation of the equipment, but not dismantling, as necessary to determine that it is correctly assembled, functioning properly and likely to do so.

Journeyman Operators, Apprentices and Maintenance Personnel

- 1. A project supervisor/superintendent shall appoint only those persons to be operators as defined in SM4.7 (1) and who are competent to operate earthwork equipment (swing type) without constant supervision.
- 2. During apprenticeship training in the field, the apprentice shall be under the supervision of a journeyman operator at all times until capable of operating earthwork equipment (swing type) without constant supervision.
- 3. The project supervisor/superintendent of earthwork equipment (swing type) shall be in possession of, and make available to every operator a copy of the "Procedures for the Operation and Maintenance of Earthwork Equipment (swing type)".
- 4. Every operator shall be physically capable of controlling earthwork equipment (swing type) without threat to the health or safety of others and shall, upon request, produce evidence of such status.

5. In addition to the foregoing requirements, any person designated as an earthwork equipment (swing type) operator shall:
 - (a) Demonstrate, to his supervisor, an understanding of these procedures, and
 - (b) Conduct a maintenance check to ensure the equipment can safely handle all tasks and loads in all conditions that may be experienced on the current shift of operations, and
 - (c) Be familiar with the earthwork equipment (swing type) to be operated, otherwise shall be given sufficient time to adequately check out and test the equipment, and
 - (d) Before operating the equipment, review the equipment log book and be satisfied that any repairs or adjustments have been affected.
6. Effective from the date of implementation of these requirements, each apprentice and operator shall maintain an operator's log book, to be signed by his supervisor at the end of each work week or at the termination of employment, in which shall be entered:
 - (a) Training records, and
 - (b) A record of experience on earthwork equipment (swing type), the models of equipment operated and all related work.
7. The project supervisor/superintendent of earthwork equipment shall engage certified mechanics, journeymen operators, or other competent technicians to set up equipment, dismantle and execute corrective maintenance. The supervisor shall engage certified technicians, technologists or professional engineers as required testing or examining as required following repairs.

Earthwork Equipment (swing type)

1. Earthwork equipment (swing type) shall be modified, installed, operated, inspected, tested, maintained and repaired to meet the manufacturer's specifications and standards which are not less than the applicable Canadian Standards Association codes.
2. Earthwork equipment (swing type) shall be used in accordance with the Occupational Health & Safety Act and Regulations. The Director of

Inspection shall be notified whenever operations may be undertaken that are outside the requirements of these procedures.

3. When replacement parts are used, such parts shall be of material and workmanship at least equal to the original materials and workmanship, of adequate strength and free from patent defect.
 - (a) Repairs are allowed by other than the original manufacturer provided such work complies with the requirements of the applicable standards, and are approved by a professional engineer.
4. Earthwork equipment shall be provided with a means of preventing unauthorized operation while the equipment is unattended.

Operation

It shall be the duty of the operator to:

1. Read and understand all safety precautions and warnings pertaining to the machine being operated.
 - (a) Know the signals for controlling equipment operations. Signals shall be given by one worker.
 - (b) Before digging, know the exact location of all buried utilities, and have them clearly marked.
2. Ensure all covers and guards are in place and secure.
3. Ensure cable is not tangled, kinked or frayed (cable machine).
4. Check for adequate tail swing clearance before operating.
5. Be at the controls when operating the machine.
6. Check for proper operations of all controls and protective devices while moving slowly in an open area.
 - (a) Left and right steering
 - (b) All brakes
 - (c) Engine governor control level

- (d) Other devices such as lights, backup alarms and horns
- 7. Clean windshield, mirrors, and steps; grab bars and operator's compartment.
- 8. Ensure no one will be endangered when operating a machine.
- 9. Never swing over the cab when loading trucks. Operator to also make sure the driver remains out of the truck during loading. Should driver stay in vehicle? If not, where does he go?
- 10. Back the machine away from an excavation before parking.
- 11. Lower the machine equipment/attachments before leaving the operator's cab when parking.
- 12. Operate the equipment in accordance with the requirements of the Electrical Protection Act when in the vicinity of power lines.
- 13. Swing the boom to the upper side of a hill to avoid tipping--except when using the boom as a support (hydraulic machine).
- 14. Ensure no one straddles the cable (cable machine).
- 15. Ensure tracks are kept clean and blocked in a manner to prevent freeze down.
- 16. Check unusual noises or problems on the equipment and deal with them accordingly.

It shall be the responsibility of the project supervisor/ superintendent to:

- 1. Know the exact location of all buried pipes and cables and have them marked.
- 2. Know the requirements of the Electrical Protection Act with regard to overhead power lines and buried cables.
- 3. Ensure that all truck drivers and other persons remain out of the cab during loading.
- 4. Ensure the machines and other equipment is kept at a safe distance from the edge of an excavation or trench.

5. Ensure that all equipment is parked properly and secured against unauthorized operation.

Inspection, Examination and Testing

1. Where competency to carry out an examination or inspection or conduct a specific test or administer a testing procedure is governed by the Engineering, Geological and Geophysical Professions Act and pursuant Regulations, then only those persons certified to carry out the procedures shall be used, and the procedures shall be carried out under the direct supervision of a registered professional engineer.
2. It shall be the responsibility of the owner or supplier of earthwork equipment (swing type) to:
 - (a) Arrange for competent persons to conduct all daily, weekly or other inspections, tests, maintenance and/or repairs as prescribed by the manufacturer's specifications, and
 - (b) Arrange for competent persons to conduct all structural, mechanical, electrical, operational or rigging repairs when required, and
 - (c) Ensure that an up-to-date equipment log is maintained which shall include records of:
 - i) Inspections
 - ii) Repairs
 - iii) Where applicable, tests of safety devices
 - iv) Size and types of wire rope in use
 - v) Rigging information
 - vi) Hours of service (hour meter recording if applicable)
 - vii) Any other operational information required by owner or supplier
3. Responsibilities of the owner or supplier may be transferred to a lessee or contractor by written contract or rental agreement.
4. The project supervisor/superintendent shall:

- (a) Allow sufficient time to complete all testing and maintenance that is or may be required.
 - (b) Inspect or test, or supervise the inspection or testing of, the equipment at the commencement of each shift, as required by the manufacturer's specifications.
5. It shall be the duty of the operator in charge of earthwork equipment to:
- (a) Inspect or test, or supervise the inspection or testing of, the equipment at the commencement of each shift, as required by the manufacturer's specifications.
 - (b) Maintain, with the equipment, an up-to-date record which shall describe:
 - i) Apparent and possible defects or deficiencies, and
 - ii) Any matter or incident which may affect the safe operation of the equipment
 - (c) Report those items recorded in accordance with Clause 4b) in SM4.7 (5) to the responsible person.
 - (d) Inspect to determine that the proper repairs or investigations have been carried out.
 - (e) Inspect to determine that the equipment tracks, wheels and bases or outrigger pads are on firm footings, adequate for the task and that such conditions will remain for the job duration.

Maintenance Plan

- 1. A maintenance schedule should be set up on an hourly, daily, weekly, monthly and/or yearly basis in accordance with the manufacturer's specifications and as set out in SM4.7 (7).
- 2. All components shall be maintained in accordance with the manufacturer's specifications.
 - (a) Repairs and modifications shall be entered into the maintenance history record.

- (b) All maintenance shall be done in a safe manner and comply with Occupational Health & Safety regulations, or other applicable regulations.

Maintenance

General

1. Equipment shall be serviced to not less than the manufacturer's specifications.
2. It may become necessary to vary maintenance schedules because of the differences in equipment and conditions of assembly, installation and operation.
3. Raised booms or other equipment components shall be secured with blocking or approved safety supports during maintenance.
4. During maintenance activities, equipment shall be locked out or when lockout is not possible a sign posted on controls identifying that the equipment is not operational.

Daily

In addition to any other requirements, at the start of every shift the operator shall:

1. Make pre-operational check before starting engine including:
 - (a) All fluid levels (fuel, crankcase oil, coolant)
 - (b) Battery electrolyte level
 - (c) Belts, radiator hoses (in place and not damaged or frayed)
 - (d) Bolts/mountings around engines
 - (e) Coolant and oil seals
 - (f) Air cleaner and connections
 - (g) Drain cocks
 - (h) Evidence of vandalism

- (i) Checking walkways, handrails and ladders
- 2. Make an operational check after starting engine and bring up to operating temperature including:
 - (a) Engine
 - i) Oil pressure is normal
 - ii) Oil level is sufficient (if manufacturer recommends checking while engine is running)
 - iii) Temperature is normal
 - iv) Battery is not discharging
 - v) Air cleaner is functioning properly as indicated by the gauge or light
 - (b) Air and Hydraulic Systems
 - i) Pressure is correct for operation (if equipped with a gauge)
 - ii) Hoses have no cuts, abrasions or bulges and are tight and leak-proof
 - (c) Hydraulic System
 - i) Oil level in hydraulic reservoir is normal
 - ii) No visible leaks in seals
 - iii) Filters are functioning properly as indicated by the gauge or warning light or alarm
 - (d) Filters
 - i) Check for contaminants
 - ii) Replace if scheduled or near schedule
 - (e) Tires (where applicable)
 - i) Check for cuts, abrasion, wear and adequate pressure

- (f) Lights
 - i) All bulbs and fuses are intact and functional
- (g) Crawler Tracks (where applicable)
 - i) Tracks are in good condition, adequate for the terrain and the operation to be carried out
- (h) Fastening Devices
 - i) Ensure there are no loose bolts/fasteners
 - ii) Ensure that boom pins and keepers are in place
- (i) Guards
 - i) Visually check all guards to ensure that they are in place and functional
- (j) Rigging and Rigging Accessories
 - i) Visually check sheave for excessive wear
 - ii) Ensure that sheave rotates freely
- (k) Controls
 - i) Equipment is operational and will hoist, swing and travel and raise and lower the load line
 - ii) Cab lock is functional
- (l) Braking and Clutch System
 - i) Clutch does not slip
 - ii) Emergency and/or parking brakes are operational
- (m) Steering
 - i) On mobile carriers: there is correct alignment and no excessive slackness

- ii) On crawlers: both tracks will operate in the same direction; tracks can operate independently; tracks can move in opposite directions; and all tracks lock
- iii) On rough terrain units: all steering modes operate, e.g., conventional, 4-wheel and crab
- (n) Lifting or Hoisting Devices
 - i) Wire-rope is not worn or kinked
 - ii) Visually check boom dogs/pawls
 - iii) Automatic kick outs in boom stops are operational
 - iv) Boom dogs/pawls or brake band on lattice booms are functioning
 - v) Boom raising and lowering functions are normal (if possible check with a load)
 - vi) Hooks raise and lower normally
- (o) Swinging/Slewing
 - i) Check that the upper works swing smoothly and excess power is not required
- (p) Boom Telescoping (where applicable)
 - i) Ensure hydraulic boom will telescope with sections extending equally or sequentially as per manufacturer's instruction
- (q) Load Weighing and Moment Devices
 - i) Check by using test circuits
- (r) Safety and Warning devices
 - i) Maintain oil and grease as per manufacturer's specifications

Weekly or Monthly as Specified

In addition to any other requirements, where the manufacturer has specified a weekly or monthly inspection of the equipment or its components, the operator or other competent person shall:

1. Lower the boom to facilitate all required inspections.
2. Inspect the structural boom components and pins for wear.
3. Visually inspect travelling components of the equipment for wear, alignment or defects:
 - (a) Rollers and tracks
 - (b) Tires and wheels
4. Inspect wire rope for wear, corrosion or fatigue and kinks, bends or other deformities such as severed strands or parting or ropes.
5. Inspect pendent and other stationary ropes for tension, proper thimbling and proper connections at anchored points.
6. Inspect all braking systems and components including bands, drums and pins for wear and controls for ease of function.

Yearly

At intervals in accordance with the manufacturer's specifications or relevant regulation, whichever is the sooner, the owner or supplier shall provide for an examination which may include:

1. Non-destructive test of all load-carrying equipment such as boom, boom mounting, sheaves, blocks, shackles, hooks, chains and slings.
2. Examine attachment of equipment to carrier at point of rotation.
3. Examine all winches and test line-pull for compliance with manufacturer's specifications.

4. Non-destructive testing should be scheduled for the fall season (October/November) to ensure structurally adequate equipment throughout the cold weather.
5. Results of testing and inspections performed shall be confirmed in writing immediately.

Statutory Provisions

Code of Practice

Clause 33(1) of the Occupational Health & Safety Act states that:

A principal contractor or employer responsible for a work site may be required

- (a) by a written order of a Director, or
- (b) by regulation

To establish a code of practice and to supply copies of it to a Director:

- (2) A code of practice shall include practical guidance on the requirements of the regulations applicable to the work site, safe working procedures in respect of the work site and other matters as required by a Director or the regulations.
- (3) A principal contractor or employer who establishes a code of practice pursuant to subsection (1) shall ensure that
 - (a) A copy of the code of practice is readily available to the workers and other persons at the work site, and
 - (b) All workers to whom the code of practice applies receive appropriate education, instruction or training with respect to the code so that they are able to comply with its requirements.
- (4) A Director may from time to time require that the code of practice be revised.

4.5 Operation and Maintenance of Earthwork Equipment (Non-Swing Type)

Purpose

The purpose of this Safe Work Procedure is to provide guidelines for the safe operation of earthwork equipment (non-swing type).

Scope

The following Safe Work Procedure is intended to establish standards of practice in the operation and maintenance of earthwork equipment (non-swing type) in use in the Province of Alberta, excluding mine and quarry operations.

These procedures are acceptable to the Occupational Health & Safety Division for the purpose of complying with requirements of the Occupational Health & Safety Act, or when a contractor, supplier, equipment owner or employer is required to establish a code of practice specifying safe working procedures in respect of earthwork equipment (non-swing type) operations.

These procedures are intended to be used in conjunction with the Occupational Health & Safety Act and pursuant regulations.

A printed copy of these procedures shall be kept as a part of the equipment log and operator's instructions at the work site where the equipment is operated.

Contractors, suppliers, equipment owners and employers of earthwork equipment (non-swing type) are required to begin implementation of these procedures as soon as possible. The procedures shall be fully implemented on January 1, 1985.

The conditions set forth in this document may, upon written request, be reviewed and are subject to revision.

References

 OH&S Act 0-2

Special Terms

.....SOP STANDARD OPERATING PROCEDURES. Similar to
Technical Procedures and Task Oriented Procedures.

Procedures

Definitions

1. **Check** - compare with a predetermined standard or normal condition of operation.
2. **Earthwork Equipment (non-swing type)** - earthwork equipment used in the operation of earth removal and placement shall include track-type tractors, motor graders, wheel tractor-scrappers (self-propelled and pull type), compactors, wheel and track-type loaders, tractor-mounted backhoe/front wheel loader and other non-swing types of equipment and attachments.
3. **Examine** - verify by visual and manual examination and by measurement and gauging of working and loaded components and surfaces, that the machinery or equipment is in a safe, satisfactory condition to do its job. Strip, dismantle, clean and take action as necessary to carry out the examination.
4. **Inspect** - Verify that the machinery or equipment is in working order in so far as can be judged by visual examination, while if appropriate, the machinery is running normally or the equipment is operating.
5. **Non-destructive Test** - A procedure used to detect internal surface and concealed defects or flaws in materials using techniques that do not damage or destroy the items being tested.
6. **Operator** - A worker designated to control the equipment or machinery such that it safely performs the function for which it is intended on a project. An operator shall be qualified as competent by the employer.
7. **Project Supervisor/Superintendent** - Contractor's representative at the site who is responsible for continuous field supervision, co-ordination, and completion of the work and the prevention of accidents with respect to the earthwork equipment.
8. **Supplier** - A person, who rents, leases, erects, installs or provides any earthwork equipment or any parts or maintenance for such equipment in respect of a project or work site.

9. **Test** - Carry out a procedure including, if appropriate, operation of the equipment, but not dismantling, as necessary to determine that it is correctly assembled, functioning properly and likely to do so.

Operators, Trainees and Maintenance Personnel

1. A project supervisor/superintendent shall appoint only those persons to be operators as defined in SM4.8 (1) and who are competent to operate earthwork equipment (non-swing) without constant supervision.
2. During training in the field, the trainee shall be under the supervision of a competent operator at all times until capable of operating earthwork equipment without constant supervision.
3. The project supervisor/superintendent of earthwork equipment shall be in possession of, and make available to every operator a copy of the “Procedures for the Operation and Maintenance of Earthwork Equipment (non-swing)”.
4. Every operator shall be physically capable of controlling earthwork equipment without threat to the health or safety of others and shall, upon request, produce evidence of such status.
5. In addition to the foregoing requirements, any person designated as an earthwork equipment operator shall:
 - (a) Demonstrate, to his supervisor, an understanding of these procedures, and
 - (b) Conduct a maintenance check to ensure the equipment can safely handle all tasks and loads in all conditions that may be experienced on the current shift of operations, and
 - (c) Be familiar with the earthwork equipment to be operated, otherwise shall be given sufficient time to adequately check out and test the equipment, and
 - (d) Before operating the equipment, review the equipment log book and satisfy himself that any repairs or adjustments have been affected.
6. Effective from the date of implementation of these requirements, each trainee and operator should maintain an operator’s log book, to be signed by his

supervisor at the end of each work week or at the termination of employment, in which shall be entered:

- (a) Training records, and
- (b) A record of experience on earthwork equipment, the models of equipment operated and all related work.

Earthwork Equipment

1. Earthwork equipment shall be modified, installed, operated, inspected, tested, maintained and repaired to meet the manufacturer's specifications and standards which are not less than the applicable Canadian Standards Association codes.
2. Earthwork equipment shall be used in accordance with the Occupational Health & Safety Act and Regulations. The Director of Inspection shall be notified whenever operations may be undertaken that are outside the requirements of these procedures.
3. When replacement parts are used, such parts shall be of material and workmanship at least equal to the original materials and workmanship, of adequate strength and free from patent defect.
4. Earthwork equipment shall be provided with a means of preventing unauthorized operation while the equipment is unattended.
5. Earthwork equipment shall be provided with a rollover protective structure, seat, belts, backup alarms and other required safety and protective devices as per General Safety Regulations.

Operation

It shall be the duty of the operator to:

1. Read and understand all safety precautions and warnings pertaining to the machine being operated, and be familiar with the legal regulations applicable to the work being performed and the location of the work site.
2. Know the signals for controlling equipment operations. Signals shall be given by one worker.

3. Before digging, know the exact location of all buried utilities, and have them clearly marked.
4. Ensure the machine is equipped with the proper fire extinguisher which has been inspected as recommended.
5. Ensure all covers and guards are in place and secure.
6. Ensure cable is not tangled, kinked or frayed (cable machine).
7. Check for adequate turning or maneuvering clearance before operating.
8. Be at the controls when operating the machine.
9. Check for proper operations of all controls and protective devices while moving slowly in an open area.
 - (a) Left and right steering
 - (b) All brakes
 - (c) Engine governor control level
 - (d) Other devices such as lights, backup alarms and horns
10. Clean windshield, mirrors, and steps, grab bars and operator's compartment.
11. Ensure no one will be endangered when operating a machine.
12. Back the machine away from an excavation before parking.
13. Lower the machine equipment/attachments before leaving the operator's cab when parking.
14. Operate the equipment in accordance with the requirements of the Electrical Protection Act when in the vicinity of power lines.
15. Use proper side hill operation procedures, as the manufacturer recommends.
16. Ensure no one straddles the cable (cable machine).
17. Ensure tracks are kept clean and blocked in a manner to prevent freeze down.

18. Check unusual noises or problems on equipment and record in equipment log book and inform supervisor/superintendent.

It shall be the responsibility of the project supervisor/ superintendent to:

1. Know the exact location of all buried utilities, have them marked and know the requirements of all applicable regulations.
2. Know the requirements of the Electrical Protection Act with regard to overhead power lines and buried cables.
3. Ensure machines and other equipment is kept at a safe distance from the edge of an excavation or trench.
4. Ensure that all equipment is parked properly and secured against unauthorized operation.

Inspection, Examination and Testing

1. Where competency to carry out an examination or inspection or conduct a specific test or administer a testing procedure is governed by the Engineering, Geological and Geophysical Professions Act and pursuant Regulations, then only those persons certified to carry out the procedures shall be used, and the procedures shall be carried out under the direct supervision of a registered professional engineer.
2. It shall be the responsibility of the owner or supplier of earthwork equipment to:
 - (a) Arrange for competent persons to conduct all daily, weekly or other inspections, tests, maintenance and/or repairs as prescribed by the manufacturer's specifications, and
 - (b) Ensure that an up-to-date equipment log is maintained which shall include records of:
 - i) Inspections
 - ii) Repairs
 - iii) Where applicable, tests of safety devices

- iv) Hours of service (hour meter recording if applicable)
 - v) Any other operational information required by owner or supplier
3. Responsibilities of the owner or supplier may be transferred to a lessee or contractor by written contract or rental agreement.
4. The project supervisor/superintendent shall:
- (a) Allow sufficient time to complete all testing and maintenance that is or may be required.
 - (b) Inspect or test, or supervise the inspection or testing of, the equipment at the commencement of each shift, as required by the manufacturer's specifications.
5. It shall be the duty of the operator in charge of earthwork equipment to:
- (a) Inspect or test, the equipment at the commencement of each shift, as required by the manufacturer's specifications.
 - (b) Maintain, with the equipment, an up-to-date record which shall describe:
 - i) Apparent and possible defects or deficiencies, and
 - ii) Any matter or incident which may affect the safe operation of the equipment
 - (c) Report those items recorded in accordance with Clause 4 b) in SM4.8 (5) to the responsible person.
 - (d) Inspect to determine that the proper repairs or investigations have been carried out.
 - (e) Inspect to determine that the equipment tracks, wheels and bases are on firm footings, adequate for the job and that such conditions will remain for the job duration.

Maintenance Plan

1. A maintenance schedule should be set up on an hourly, daily, weekly, monthly and/or yearly basis in accordance with the manufacturer's specifications.
2. All components shall be maintained in accordance with the manufacturer's specifications.
 - (a) Repairs and modifications shall be entered into the maintenance history record.
 - (b) All maintenance shall be done in a safe manner and comply with Occupational Health & Safety regulations, or other applicable regulations.

Maintenance

General

1. Equipment shall be serviced to not less than the manufacturer's specifications.
2. It may become necessary to vary maintenance schedules because of the differences in equipment and conditions of assembly, installation and operation.
3. Raised blades or other equipment components shall be secured with blocking or approved safety supports during maintenance.
4. During maintenance activities, equipment shall be locked out or when lockout is not possible a sign posted on controls identifying that the equipment is not operational.

Daily

In addition to any other requirements, at the start of every shift the operator shall:

1. Make pre-operational check before starting engine including:
 - (a) All fluid levels (fuel, crankcase oil, coolant)

- (b) Battery
 - (c) Belts, radiator hoses (in place and not damaged or frayed)
 - (d) Bolts/mountings around engines
 - (e) Coolant and oil seals
 - (f) Air cleaner and connections
 - (g) Drain cocks
 - (h) Evidence of vandalism
 - (i) Checking walkways, handrails and ladders
2. Make an operational check after starting engine and bring up to operating temperature including:
- (a) Engine
 - i) Oil pressure is normal
 - ii) Oil level is sufficient (if manufacturer recommends checking while engine is running)
 - iii) Temperature is normal
 - iv) Battery is not discharging
 - v) Air cleaner is functioning properly as indicated by the gauge or light
 - (b) Air and Hydraulic Systems
 - i) Pressure is correct for operation (if equipped with a gauge)
 - ii) Hoses have no cuts, abrasions or bulges and are tight and leak-proof
 - (c) Hydraulic System
 - i) Oil level in hydraulic reservoir is normal

- ii) No visible leaks in seals
- iii) Filters are functioning properly as indicated by the gauge or warning light or alarm
- (d) Filters
 - i) Check for contaminants
 - ii) Replace if scheduled or near schedule
- (e) Tires (where applicable)
 - i) Check for cuts, abrasion, wear and adequate pressure
- (f) Lights
 - i) All bulbs and fuses are intact and functional
- (g) Crawler Tracks (where applicable)
 - i) Tracks are in good condition, adequate for the terrain and the operation to be carried out
- (h) Fastening Devices
 - i) Ensure there are no loose bolts/fasteners
 - ii) Ensure that boom pins and keepers are in place
- (i) Guards
 - i) Visually check all guards to ensure that they are in place and functional
- (j) Controls
 - i) Equipment is operational and will travel and raise and lower smoothly, under control
- (k) Braking and Clutch System
 - i) Clutch does not slip

- ii) Emergency and/or parking brakes are operational
- (l) Steering
 - i) On mobile carriers: there is correct alignment and no excessive slackness
 - ii) On crawlers: both tracks will operate in the same direction; tracks can operate independently; tracks can move in opposite directions; and all tracks lock
 - iii) On rough terrain units: all steering modes operate, e.g., conventional, 4-wheel and crab
- (m) Safety and Warning devices
 - i) Maintain oil and grease as per manufacturer's specifications

Weekly or Monthly as Specified

In addition to any other requirements, where the manufacturer has specified a weekly or monthly inspection of the equipment or its components, the operator or other competent person shall:

1. Inspect the structural components and pins for wear.
2. Visually inspect travelling components of the equipment for wear, alignment or defects:
 - (a) Rollers and tracks
 - (b) Tires and wheels
3. Inspect all braking systems and components including bands, drums and pins for wear and controls for ease of function.

Yearly

At intervals in accordance with the manufacturer's specifications or relevant regulation, whichever is the sooner, the owner or supplier shall provide for the required examination.

4.6 Excavations / Trenches & Ground Disturbance

Purpose

The purpose of this procedure is to provide information on trenching and excavations.

Scope

This procedure is to be used by employees and outside contractors when digging on the job site.

References

 OH&S Code, Part 32

Special Terms

OH&S OCCUPATIONAL HEALTH & SAFETY

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

SWP..... Safe Work Procedure

Procedures (The WGS Safe Work Procedure for Ground Disturbance must be followed)

Excavation

Subject to the OH&S Code, Part 32, “Excavating and Tunneling”, the following is also observed by WGS:

The following must be established:

- A precise location of the work
- The date the work is to be carried out.
- A concise explanation of the work to be performed.

The following precautions must be taken:

- All underground services within the work site must be traced by Alberta One-Call (1-800-242-3447) and the locations of the services must be pegged out.
- Safety barriers must be put in place before digging starts.

Shoring/sloping of excavated areas must be in accordance with procedure for trenches and OH&S Code, Part 32, “Excavating and Tunneling”, and Code Schedule 9 “Sharing Component Dimensions”.

Trenches

A necessary consideration in the planning of sewer, pipeline, and similar sub-surface work by the trenching method is preventing trench wall cave-in and soil movement. Either or both may result in death or serious injury to workers, plus damages to adjacent structures and utilities.

The hazards associated with trenching include:

- Death by suffocation or crushing when falling soil buries a worker.
- Materials falling on a worker in the trench.
- Failure of apparently adequate shoring due to unexpected loads.
- These loads are usually superimposed on the shoring structure or ground surface at the edge of the trench. Failure may also result from vibration due to traffic.
- Use of defective shoring material.
- Failure to maintain shoring properly after changes caused by operation or after damage by washouts or heavy rains.
- Failure to place removed soil at a safe distance from the edge of a trench. (Must be minimum 1m. away, with minimum 45 degree slope).

- Workers working too close together or too close to the equipment.

Making ourselves familiar with these hazards, being able to recognize them as hazards, and being prepared to take some positive action to eliminate them, could very well save a life.

Tables SM4.6T1 and T2 showing trench depths and widths can be used as a guide to ensure proper width and depth ratios for any trench 1.8 m or greater in depth.

Please refer to the appropriate section of the Occupational Health and Safety Code, Schedule 9 for lumber sizes for adequate shoring.

4.6/T1 Table 1 30° Cut-back

Width of trenches across top to give 30° cut-back.

Width of Bottom	1.2 m	1.8 m	2.4 m
Depth	Width Across Top (meters)		
1.8	3.4	3.7	4.6
2.1	3.7	4.3	4.9
2.4	4.1	4.7	5.3
2.7	4.4	5.0	5.6
3.0	4.7	5.3	6.0
3.4	5.0	5.6	6.3
3.7	5.5	6.1	6.7
4.0	5.8	6.4	7.0
4.3	6.1	6.7	7.3
4.6	6.6	7.2	7.8
4.9	6.9	7.5	8.1
5.2	7.2	7.8	8.4
5.5	7.5	8.0	8.7
5.8	7.9	8.5	9.2
6.1	8.2	9.0	9.5
6.4	8.7	9.3	9.9
6.7	9.0	9.6	10.2
7.0	9.3	9.9	10.5

Width of Bottom	1.2 m	1.8 m	2.4 m
Depth	Width Across Top (meters)		
7.3	9.8	10.4	11.0
7.6	10.1	10.7	11.3
7.9	10.4	11.0	11.6
8.2	10.7	11.3	11.9
8.5	11.1	11.7	12.4
8.8	11.4	12.0	12.7
9.2	11.7	12.4	13.0

(To convert to Feet multiply by 3.28)

4.6/T2 Table 2 45° Cut-back

Width of trenches across top to give 45° cut-back.

Width of Bottom	1.2 m	1.8 m	2.4 m
Depth	Width Across Top (meters)		
1.8	4.9	5.5	6.1
2.1	5.5	6.1	6.7
2.4	6.1	6.7	7.3
2.7	6.7	7.3	7.9
3.1	7.3	7.9	8.5
3.4	7.9	8.5	9.2
3.7	8.5	9.2	9.8
4.0	9.2	9.8	10.4
4.3	9.8	10.4	11.0
4.6	10.4	11.0	11.6
4.9	11.0	11.6	12.2
5.2	11.6	12.2	12.8
5.5	12.2	12.8	13.4
5.8	12.8	13.4	14.0
6.1	13.4	14.0	14.6
6.4	14.0	14.6	15.2

Width of Bottom	1.2 m	1.8 m	2.4 m
Depth	Width Across Top (meters)		
6.7	14.6	15.2	15.9
7.0	15.2	15.9	16.5
7.3	15.9	16.5	17.1
7.6	16.5	17.1	17.7
7.9	17.1	17.7	18.3
8.2	17.7	18.3	18.9
8.5	18.3	18.9	19.5
8.8	18.9	19.5	20.1
9.2	19.5	20.1	20.7

(To convert to Feet multiply by 3.28)

4.7 Stabilizing or Excavating Around Buried Utilities

Purpose

The purpose of this procedure is to provide guidelines for safely working around buried utilities.

Scope

The following procedure applies to all employees when stabilizing subgrade or excavating around buried utilities.

References

OH&S Code, Part 32, Sections 447- 448, and the Edmonton Area Pipeline and Utility Operators' Committee (EAPUOC) Guidelines for Working Near Buried Facilities.

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Safety Procedures

Due to the extreme dangers involved in working around buried utilities, the following procedures are to be used to improve the safety for equipment operators when stabilizing or excavating is being performed. We must try to exceed the guidelines set out by OH&S as “minimum” standards.

Three definitions of ground disturbance:

1. OH&S: The ground is disturbed if a work operation or activity on or under the existing surface results in a disturbance or displacement of the soil, but not if the disturbance or displacement is a result of
 - i) Routine or minor road maintenance.
 - ii) Agricultural cultivation to a depth of less than 450 mm below the ground source over a pipeline, or
 - iii) Hand digging to a depth of no more than 300 mm below the ground surface, so long as it does not permanently remove cover over a buried facility.
1. A search of a 30 meter radius from where the ground disturbance is taking place.
2. Pipe Line Act:
 - i) Any depth over a pipeline.
 - ii) Anything over 30 cm if it reduces the initial cover over a pipeline.
 - iii) Cultivation over 45 cm.
3. Best Practices:
 - Any activity that disturbs the earth.

Examples of ground disturbance:

- Digging, trenching, excavation, drilling, pipe pushing
- Top soil stripping, grading, ditch shaping, land leveling
- Tunneling, boring, rock picking, tree planting, blasting
- Fibrosis, logging, subsoil aeration, plowing pipe or cable

- Driving over or parking on right of ways
- Vertical and horizontal **augering**
- Driving bars, posts or anchors
- Cutting fire breaks
- Removing buried facilities
- Any activity that disturbs the ground in any way

Before beginning a ground disturbance:

1. Call Alberta One Call.

*Note: Not all owners of buried facilities are members of AB. One Call and they will not be notified by AB. One call. Therefore, a search is very important. Any facility owners that are not members of AB. One Call must be contacted directly.

2. Search an area of a 30 m radius from where the ground disturbance is to be conducted.

3. Contact Alberta One Call and the Owner if any pipeline is found within 30m of the ground disturbance or any other facilities that may be affected by the ground disturbance.

4. Arrange for locates if you are within the 30m control zone of a pipeline or any other facility that may be affected by the ground disturbance. Obtain and keep your locate slip for the duration of the job.

* Note: Locate requests must be given at least 2 business days. Locates are only good for 14 days and must remain in place for the entire duration of the job. If at the end of 14 days the owner of the facility is satisfied that the locates have not been disturbed, the owner may extend the life of the locates another 16 days, for a maximum of 30 days. If the job is still not done at the end of thirty days, new locates must be requested. (Remember, locates must have two business days' notice, so 2 days prior to the 14 day expiration date, contact the owner. Two business days prior to the thirty days, request new locates. When the job is complete, all locate marks must be removed.

*If locate marks are moved or disturbed, they must be replaced. If you are ever in doubt of the accuracy of the marks, request a new locate.

5. If any work is within the right of way of a facility, permission must be obtained from the owner and the facility must be day lighted.

Right of ways: Pipeline-5 meters on each side of pipeline centerline.

All other facilities- One meter on each side of pipeline centerline.

*Note: Some high voltage electrical lines may have a right of way of greater than 1 meter.

Anytime a ground disturbance runs parallel to a buried facility and within the right of way, day lighting may be required at regular intervals to the satisfaction of the owner.

6. Day lighting must be done under the supervision of the owner. And no mechanical excavation can be done within 60 cm of a pipeline or any depth underneath a pipeline until the pipeline is day lighted and must be done under the direct supervision of the owner.

*Note: Acceptable forms of day lighting: - Hand digging with a shovel.

- Hydro-vac or air vac.

- Methods acceptable to the owner.

7. Before backfilling, notify the owner within 24 hours. Backfilling must be done under the supervision of the owner.

8. Return site to original condition.

4.8 Working near Overhead Power Lines


Purpose

The purpose of this procedure is to provide a means of working near overhead power lines while ensuring the safety of all workers and equipment involved, as well as the public.

Scope

This procedure affects all personnel, including subcontractors, involved in working near power lines.

References

 OHS Code – Part 17, OHS Code – Schedule 4, Epcor website / training brochure.

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

General

Working Near Power Line

Before any work takes place or equipment is operated within 7 meters of an energized power line, the following MUST be established:

1. The employer/supervisor **MUST** contact the utility owner or representative in order to:
 - (a) Determine the voltage of the line, and
 - (b) To establish the appropriate safe limit of approach distance listed in Schedule 4 of the OHS Code.
2. The employer/supervisor must notify the utility owner if the work is to encroach on the established safe limit of approach, **AND** obtain the utility owner's assistance in protecting the workers involved.
3. The employer must ensure that earth or other materials are not placed under or beside an overhead line if doing so reduces the safe clearance to less than the safe limit of approach distances in Schedule 4.
4. All workers must follow the direction of the employer in maintaining the appropriate safe clearance, and notify the supervisor if they feel the appropriate safe clearance cannot be maintained.

NEVER WORK NEAR POWER LINES UNLESS THE SAFE LIMITS OF APPROACH ARE KNOWN AND CAN BE MAINTAINED.

Limits of Approach

Table 2-1 Limits of Approach Distances from Overhead Power Lines for Persons and Equipment

Operating voltage of overhead power line between phase conductors	Safe limit of approach distance for persons and equipment
0 – 750 V insulated or polyethylene covered conductors (1)	0.3 m
0 – 750 V bare, uninsulated	1.0 m
Above 750 V insulated conductors (1) (2)	1.0 m
.75 kV - 40 kV	3.0 m
69 kV - 72 kV	3.5 m
138 kV - 144 kV	4.0 m
230 kV - 260 kV	5.0 m
500 kV	7.0 m

Notes: (1) Conductors must be insulated or covered throughout their entire length to comply with these groups.

(2) Conductors must be manufactured to rated and tested insulation levels

Limits of approach are set to keep you working safely on the jobsite. The danger with overhead lines is that there is no protection on the wire. Electricity is looking for a path to the ground, so if contact is made you or your equipment can be its path. Follow these steps when encountering an overhead line:

- Determine voltage (contact owner).
- Determine safe limits of approach (verify with owner).
- Ensure there is enough clearance to keep workers and equipment safe from their highest point (example: truck box fully raised, boom fully extended, etc.)
- Mark location of all overhead lines on plans and drawings.
- Set up signs warning of overhead power lines (from both directions). NOTE: in extreme circumstances (poor visibility, very low line, etc.) the utility owner may

be willing to mark the line with ribbons, PVC pipe, or other means. They may be willing to relocate the line if determined necessary. Request if needed.

- When trucks are dumping within 25 meters on either side of an overhead line, they **MUST** do so moving **AWAY** from the line where reasonably practicable. Mark the 25 meter zone (with a paint line, cones, ribbons, etc.) and make drivers aware.
- Keep all unnecessary personnel, vehicles, and equipment away from power lines
- Ground personnel **MUST** keep clear of all equipment working near power lines, as electricity may be transferred through them if the equipment contacts a line while they are in contact with the equipment.
- If working under a power line or near the limits of approach cannot be avoided, a signal person **MUST** be used to direct the operator.

Guiding Loads

The only job of a designated signal person (or spotter) is to keep the equipment from contacting the power line. The signaler **MUST** know the limits of approach and be able to signal the operator quickly and easily if there is danger of contacting the power line. The signaler must stand out from the other workers, and use clear signals easily understood by the operator.

Accidental Contact

Power lines don't always jump or spark when down. A downed line may not have any sign that it is energized.

- Stay back at least 10 meters. Call 911 for help.
- Just like ripples caused by throwing a rock into a pond, electricity travels through the ground in waves that lose power the further they travel. If a line comes down near you, **SHUFFLE WITH BOTH FEET IN CONTINUOUS CONTACT** until you is at least 10 meters away.
- Do not touch someone being shocked by a downed line or you will run the risk of being shocked.
- Stay inside your vehicle or on your equipment if a downed line touches it.
- If people try to help, tell them to stay away.
- Wait for the utility workers to turn off the power and tell you it's safe to leave.
- Do not try to help someone trapped in a vehicle touching live wires.

4.9 Grounding Procedures for Cement Spreader Trucks and Bulker Trailers

Purpose

The purpose of this procedure is to provide guidelines for reducing the chance of static discharge when operating cement bulker trailers or loading spreader trucks.

Scope

The following procedure applies to all personnel who work directly with cement spreader trucks and bulker trailers.

Special Terms

PPE.....PERSONAL PROTECTIVE EQUIPMENT

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

General Information

The loading of cement from a cement bulker trailer or tractor-trailer unit to the spreader trucks produces static electricity. Loading cement in conditions (such as parking on asphalt) that inhibit the travel of static electricity to ground can put the operator at risk of receiving an electric shock any time they touch either unit (spreader truck or trailer). Therefore, performing this loading operation at a location (such as parking on dirt) that allows static electricity to travel to ground is advised.

Hazards

- Electric shock from static electricity.

Safe Operating Guidelines

1. Always spot bulker trailers and load spreader trucks on good ground conditions. If site conditions require the operator to load while parked on asphalt, a ground harness must be installed prior to loading.
2. A ground harness is provided on each unit. It consists of a metal probe and 10 meters of ground cable brazed to the unit on one and a ground clamp attached to the other. Insert the probe into the ground and attaché the ground clamp to the probe. This will bleed off any static charge to ground.
3. All PPE must be worn as required on the job site.

4.10 Cleaning Water Nozzles

Purpose

The purpose of this procedure is to provide guidelines for cleaning water nozzles on a SS250 Caterpillar Soil Mixer.

Scope

The following procedure applies to all personnel who work directly with the SS250 Caterpillar Soil Mixers.

Special Terms

PPE.....PERSONAL PROTECTIVE EQUIPMENT

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

1. Pre start up inspection to make sure everything is in place.
2. Make sure safety chains are hooked before walking along side.
3. Contact operator before approaching cleaning area. While in eye contact with operator, outside nozzles can be cleaned while machine is working without entering the danger area under the machine.
4. To clean the interior nozzles, machine must be SHUT OFF. Make sure operator is aware that you are cleaning the interior nozzles.
5. Contact operator immediately after cleaning is done to show area is clear.
6. Absolutely no riding on the machine.
7. Workers will not be allowed to clean the nozzles until their supervisor is satisfied that they understand and are capable and competent of performing the task safely.

PPE and Equipment to be Used

- Hard Hat
- Reflective Safety Vest
- Safety Boots
- Eye wear protection
- Hearing Protection
- Chain

4.11 Operation and Maintenance of the Traffic Control Zone

Purpose




The purpose of this Safe Work Procedure is to:

- 1) Identify indicators of ineffective traffic control installations and review potential remedies for correcting observed deficiencies, and to
- 2) Alert students to the needs related to the operation of traffic control zones and procedures for maintaining the devices.

Scope

This procedure applies to all personnel who work in traffic areas.

References

-  Flag personnel Training Workbook,
The Alberta Construction Safety Association
-  Temporary Traffic Control Manual – ACSA
-  Procedures for On-Street Construction – City of Edmonton

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. SIMILAR TO
TECHNICAL PROCEDURES AND TASK ORIENTED
PROCEDURES.

Procedures

Flagging

Flagging Functions

Flagging is provided at work sites either to stop traffic intermittently as necessitated by work progress or to maintain continuous traffic flow past the work site at reduced speeds to help protect the work crew. The flag personnel must, at all times, be clearly visible to approaching traffic for a sight distance sufficient to permit proper response by the motorist to the flagging instructions and to permit traffic to reduce speed before entering the work site area.

The flag personnel have three (3) basic functions--all of equal importance:

1. To guide traffic safely through a work area.
2. To protect the lives of the public and fellow employees working on and near the public right-of-way.
3. To answer courteously and intelligently reasonable questions.

Selection of Flagpeople

The flag personnel makes the most public contacts each day of all persons engaged in the construction activity. Therefore, it is important that the flag personnel be carefully selected and trained. Flag personnel should possess and maintain the following qualifications:

- Intelligence
- Good physical condition, especially sight and hearing
- Mental alertness
- A courteous but firm manner
- A pleasing personality
- Neat appearance
- Sense of responsibility for safety of the public and fellow workers
- Patience

Flag personnel must be given instruction and training so that they will know how to perform their duties effectively. The following points must be emphasized: importance of their job, attitude, clothing, tools, location or position, and action or motions for directing vehicles.

Flagging Equipment

When on duty, flag personnel should be appropriately dressed to alert the motorist. The green coveralls or pant/jacket combo with reflective striping should be used strictly for flagging. All equipment must be reflectorized except if it will never be used during dusk or night conditions.

Hand-signaling devices, such as STOP/SLOW paddles, red flags and lights are used in controlling traffic through work areas.

The sign paddle bearing the clear messages "STOP" or "SLOW" provides motorists with more positive guidance than flags and should be the primary hand-signaling device. Flag use should be limited to emergency situations and at spot locations which can best be controlled by a single flagger.

Sign paddles should be at least 18 inches across at the smallest dimension. A rigid handle must be provided. This combination sign may be fabricated from sheet metal or light semi-rigid material. The background of the "STOP" face shall be red with white letters and borders. The background of the "SLOW" is orange with black letters and borders.

Flags used for signaling purposes must be a minimum of 24 inches by 24 inches square, made of heavy duty red material and securely fastened to a staff 3 feet in length.

Flagpeople Location

One consideration in selecting the flagging position is to maintain color contrast between the flag person and background. Flag personnel must be clearly visible to the approaching motorist at all times. Therefore, the flag personnel must stand alone, never permitting anyone to congregate nearby.

While awaiting traffic, the flag personnel should stand in a conspicuous position on the right edge of the travelled lane facing the direction of the approaching traffic. If there is a closed lane next to the shoulder, the flag personnel should stand in that lane just outside (to the right of) the lane of traffic. At a "spot" work site the flag personnel may have to stand on the shoulder to the left of the travelled lane or opposite the barricaded section in order to operate effectively, never in an open traffic lane. Visibility should not be impaired by curves, hills and parked vehicles or equipment and the flag personnel should always have an escape route.

Flagging stations must be adequately protected and preceded by proper advance warning signs. Flagging stations used during non-daylight hours must be adequately illuminated. The adequacy of the floodlight placement and illumination can best be determined by driving through, and observing the floodlighted area from each direction on the roadway.

Advance flag personnel are required at some sites, and particularly where there is limited sight distance to the work area. Therefore, flagging stations must be located far enough in advance of the work site so that approaching traffic will have sufficient distance to reduce speed before entering the work site area and the flag personnel will have sufficient time to warn workers of approaching danger, such as out-of-control vehicles. This distance is related to approach speed and physical conditions at the site; however, 200-300 feet is generally a desirable minimum. In urban areas when speeds are low, and streets closely spaced, the distance may be reduced, depending upon prevalent conditions.

Flagpeople Co-ordination

Where flag personnel are not inter-visible, one of the following methods may be used to assure that the assignment of right-of-way to traffic is co-ordinate.

Pilot Cars - during a one-lane two-way operation with the flag personnel on the opposite end not visible, a pilot car may then be used to escort vehicles through the work area.

Walkie-talkies – walkie-talkies are an effective alternative to pilot cars. Flag personnel can communicate with each other and insure that traffic is only moving in one direction at one time. A description of the last car in the convoy can be easily given using the make, color and license number of that vehicle. If at any one time during this type of operation a flag personnel is in doubt as to which direction has the right-of-way, all traffic shall be stopped until the right-of-way is firmly established.

Flag Retrieval - a third alternative is to give the last car in the convoy a flag which is retrieved at the far and sent back with the last car of the returning convoy.

Use of Law Enforcement Personnel

In general, standard traffic control devices and flag personnel usually suffice in controlling traffic in and around most work sites. Conditions may occur; however, which require additional traffic control methods or personnel. In that event, law enforcement personnel (police officers) may be available to assist in emergencies or on a pre-arranged basis in an off-duty capacity.

If needed, procedures for obtaining off-duty police personnel for work site traffic control during non-emergency periods should be developed. The procedures should spell out the process for obtaining the services of off-duty police officers, whom to contact and how; including such items as the amount of compensation to be paid, union requirements (if any) and the appropriate dress and equipment of a flag personnel.

Procedure for coordinating police traffic control efforts with whoever is responsible for the work site operation should be determined. Many conflicts can be avoided by clarifying work site roles and responsibilities before rather than after the fact.

Special conditions where police assistance is almost always required need to be identified. For example, use of police officers could be mandatory for traffic control when the work site is located in close proximity to a signalized intersection.

Formal recognition of the valuable assistance police officers can provide during normal daily patrols should be emphasized. With a minimum of additional orientation, police officers can spot and notify appropriate officials of any need to repair or reset damaged traffic control devices. This is especially useful and important for locating hazardous situations that were either overlooked or have developed since the end of the last regular work day.

Although every effort should be made to maintain traffic with standard traffic control devices and flag personnel, situations do arise where police assistance may be desirable and in some cases, essential.

Inspection of Traffic Control Zone

Maintenance Inspection

A formal inspection and maintenance procedure includes:

- A plan
- Inspection procedures
- An evaluation form
- A repair program
- Documentation in a report

The signing and delineation materials must be continuously monitored and maintained because devices can be accidentally moved by:

- Traffic
- Construction activity
- Wind

The objective of maintenance is to keep all traffic control devices in good condition and in the proper position to:

- Minimize accident potential
- Minimize potential litigation
- Check vandalism
- Accommodate adverse weather conditions
 - Dusk, rain, snow, fog

On all projects, someone should be designated to be in charge of maintaining traffic controls. On large projects, use is made of traffic control teams.

The frequency of inspection should be based on:

- Project size and duration
- Extent of liability
- Severity of hazards

Flagperson Complaints Against Motorists (Assaults - Driver Violations)

The procedure for laying a complaint against a motorist is as follows:

1. Gather as much information as possible about the offender, i.e., license number, vehicle make, color, description of driver and names of witnesses.
2. Call the HSE Coordinator at 780-831-6479.
3. Relate complete details of the incident to the coordinator.
4. If required, the safety coordinator may escort the employee to a police station for reporting; however, under normal circumstances, the police should respond to the work site.
5. Report any injuries to the police or 911, and an ambulance will automatically be dispatched.
6. The police will evaluate all evidence and determine:
 - (a) What charges apply
 - (b) What charges to lay
 - (c) Take appropriate action
7. Make detailed notes of the incident as soon as possible and retain them in a safe place. You will require them should the matter go to court. Provide a copy for the investigating police officer.
8. Witness fees are not paid for attending court; however, you will not lose your regular pay.

4.12 Vibratory Asphalt Rollers

Purpose

The purpose of this procedure is to provide safe work procedures for operating vibratory asphalt rollers.


Scope

The following procedure applies to all employees operating vibratory asphalt rollers.

References

 None

Distribution

 *See Issue Log in Safety Manual*

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Safe Operating Guidelines

1. Before starting equipment, walk around the machine. Visually inspect for oil leaks, vandalism, or any damage to the equipment. Advise supervisor of any abnormalities.
2. Mount and/or dismount the asphalt roller utilizing the 3-Point mount/dismount method.
3. Check water pump operation for sprayers.
4. Operators are required to start their equipment prior to the start of their shift. Arrive early and allow for warm up.
5. Climb onto the machine and be seated prior to starting the equipment. Start at idle speed. Check to see that all gauges are working and readings are normal. Report any concerns to your supervisor.
6. Move roller slowly forward and apply brakes to ensure they are working properly. Check to see if back up alarm is working.
7. Do not enter articulation area when anyone is on the machine or while it is running.
8. Seat belts must be worn when there is a rollover protection system in place. If changing seats, stop the machine.
9. Keep a safe distance away from buildings, machines and workers.
10. The operator must be aware of blind spots when there are people and other machines in the area. When passing people or machines, the operator should sit on the same side as the obstruction. The operator must stop the roller a minimum of six (6) meters from the paver unless instructed to do otherwise. Under normal operating conditions, the operator should sit on the ditch side when roading between job sites.
11. Operate the machine at full throttle only.
12. When operating on, or near, steep grades the operator must be familiar with the procedures to follow should he experience a loss of power while on the grade.

13. Stop at a safe place when filling water tanks.
 - (a) Set the parking brake.
 - (b) Caution must be used when standing on wet, slippery surfaces.
14. When shutting down, apply the parking brake and allow the motor time to cool down before shutting motor off.
15. After parking the equipment at the end of a shift, walk around the machine. Visually inspect, again, for oil leaks or damage. Report any problems to your supervisor.

4.13 Paving

Purpose

The purpose of this procedure is to provide safe work guidelines for paving.

Scope

The following procedure applies to all employees involved with paving.

Special Terms

PPE.....PERSONAL PROTECTIVE EQUIPMENT

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Clothing

All personnel involved with paving procedures must wear long pants, shirts with sleeves, and all personal protective equipment as required in the PPE chapter of the Safety Manual.

All clothing worn by employees working close to the paver should fit properly. There is a danger of loose clothing getting caught in the moving parts of the machine.

Safe Work Guidelines

1. Always use the steps and hand holds on the rear of the paver for mounting and dismounting.
2. Under normal circumstances, unauthorized personnel are not permitted on the screed or platform of the paver.
3. Do not leave the paver unattended while the screed burners are on. Ensure fire extinguisher is unlocked and within easy reach.
4. Never cross, or stand, in front of the paver while a truck is backing in. No truck will back up to the paver unless directed by the dump person or the operator.
5. The paver must be shut off when cleaning or servicing.
6. Do not attempt any work under the paver without safety cables or locks on, or proper blocking in place.
7. Do not leave shovels, rakes, or other tools on the paver hopper while the paver is running.
8. Workers will be warned before the screed is lowered or raised. Workers will be responsible for ensuring they are clear of pinch points. Tools (shovels and rakes) must be kept clear of these areas.
9. Keep operator's platform tidy and walkways clear. This will reduce the potential for tripping. Any diesel sprayed on catwalks or platform must be washed off immediately.
10. When paver is in operation, stay clear of the auger area.

11. Be aware of the sequence of operation and stay out of the path or working equipment.

4.14 Screed Operation

Purpose

The purpose of this procedure is to provide information on screed operations.

Scope

The following procedure applies to all personnel involved in screed operations.

Special Terms

PPE.....PERSONAL PROTECTIVE EQUIPMENT

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Clothing

All personnel involved with screed operations must wear long pants, shirts with sleeves, and all personal protective equipment as required in the PPE chapter of the Safety Manual.

Tools Required

- Wrench for crown adjustment
- Hand level
- String line
- Tape measure
- Depth probe
- Fire Extinguisher

Checking Crown

1. Raise screed and lock in raised position.
2. Place paver in neutral or stop position and apply emergency brake.
3. With one person on either side of the screed, pull string tight across the bottom of the screed at both the front and the back.
4. Remove the crown adjustment wrench from the storage position and adjust crown to the desired position.
5. Replace wrench in storage position.

Lighting Burners

1. Check for diesel fuel or hydraulic fluid on screed before starting burners.
2. Ensure the fire extinguishers are unlocked.
3. Light burners.
 - (a) Diesel Fuel Burners:
 - i) Turn on fuel pump.
 - ii) Hold switch to igniter.

- iii) Open fuel valve to burner.
- iv) Switch to blower at ignition.
- (b) Propane Burners:
 - i) Ensure torch valves are off prior to turning on propane bottles.
 - ii) Remove torch from burner box.
 - iii) Crack open torch valve and light using a striker.
 - iv) Place torch back into burner box.
 - v) Always light one burner at a time.
- 4. Visually check to ensure burners are working.
- 5. Do not leave area and check screed temperature frequently to prevent overheating.

Burner Shutdown

- 1. Shut off fuel (diesel or propane). Ensure all fuel valves are turned off.
- 2. Leave blowers running for a minimum of ten (10) minutes and then shut off fan.

Paving Operations

- 1. Guide paver into starting position making sure area is free of workers and tools.
- 2. Stand free of screed as it is lowered.
- 3. Check for clearance before extending extensions to desired positions.
- 4. Adjust screed for "Take Off".
- 5. Indicate to paver operator when ready to "Take Off".
- 6. Do not allow tools or workers to clutter the screed area.
- 7. Watch for rollers at all times.
- 8. At the end of the mat, retract the extensions.

General Care

1. Check lines and hoses for wear.
2. Check steps and safety rails to ensure they are not loose.
3. Keep screed clean of asphalt build up and free from grease and oil.
4. Have secure holder for levels and probes.

4.15 Asphalt Raking

Purpose

The purpose of this procedure is to provide information for raking asphalt.

Scope

The following procedure applies to all employees involved in asphalt raking.

Special Terms

PPE.....PERSONAL PROTECTIVE EQUIPMENT

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Clothing

All personnel involved with raking asphalt must wear long pants, shirts with sleeves, and all personal protective equipment as required in the PPE chapter of the Safety Manual

Tools

- Asphalt rake
- Hand scraper

Safe Work Guidelines

1. Work inside the safe work zone as set up with barricades or flag people. Do not stand beyond this area to rake seam.
2. To prevent back injury, maintain an upright position when working.
3. Warn other workers of the hazard of walking behind the rake while it is being used.
4. Watch for traffic, moving equipment (rollers) or vehicles at all times.
5. Avoid using rake to move large amounts of material.
6. Keep rake clean and in good working order. Tighten loose bolts and screws as necessary.
7. When building a take-off pad, make sure paver is out of the way and does not back up until you have finished. Indicate to the paver operator or supervisor when you have finished.
8. When finishing or ending a mat, make sure rollers stay back. Indicate to the operator when you have finished.
9. Place the rake in a safe place when it is not being used. Make sure it cannot be stepped on, tripped over, or hit by machinery.
10. If rakes are carried on the paver, they must be in a secure area and must not interfere with any operation of the machine or its operator.

4.16 Lighting of Tar Kettle

Purpose

The purpose of this procedure is to provide guidelines for lighting tar kettles.

Scope

The following Safe Work Procedure applies to all personnel who are involved in asphalt and paving operations.

Special Terms

ACRONYMSALL ACRONYMS used in each chapter are placed here.

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Lighting of Tar Kettle

Ensure bottom burner valve is shut off.

Ensure main propane tank valve is shut off.

Note: If bottom valve has been open, wait five (5) minutes before continuing. The reason being that there is a possibility of propane being able to leak into the firing chamber and this build-up could create an explosion.

If both valves have been shut off, then proceed.

Light tiger torch: a) turn bottle valve to torch on
b) crack open valve at torch head
c) ignite with safety gas lighter

Place tiger torch in burning chamber, open main propane valve, and then open bottom burner valve.

Remove torch and adjust propane flow to burner as necessary.

Caution - If the propane is turned too high, burner may blow out.
- If too windy, burner may blow out.

If burner goes out, turn both valves off; wait five (5) minutes before proceeding to relight.

To shut it down, first shut off propane bottle valve, then burner valve.

Hazards

Never leave tar kettle unattended after it has been fired up. There is the danger of fire and/or explosion due to high heat or low tar level in pot.

Check tar kettles, especially after a heavy rain to ensure no water has entered into the kettle. If water is seen inside tar kettle, completely dry up by bailing out--use a cloth or rag to absorb last small amount.

Note: Water left inside tar pot will be converted to steam causing violent eruptions, throwing hot tar high into the air.

Ensure tar level is high enough to absorb heat from burner. Tar kettle temperature should not exceed 325°F. Reduce burning rate as tar levels drop.

Turn tar pails upside down each morning to remove any water before running hot tar into them.

Clean off tar pot once a week to minimize fire hazard.

An ABC-rated fire extinguisher must always be mounted on tar kettle or be available on truck.

4.17 Crack filling

Purpose

The purpose of this procedure is to provide personnel with safe working procedures when crack filling.

Scope

The following procedures are to be used by all employees when crack filling.

Special Terms

PPE.....PERSONAL PROTECTIVE EQUIPMENT

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Key Steps Occurring

Assembling of vehicles, equipment, material and personnel.

Potential Health or Safety Concerns

- Climbing on and off vehicles
- Lifting
- Propane
- Material
- Diesel fuel
- Handling hot material

Equipment, PPE and Apparel to be Used

- Full personal PPE and apparel
- Proper tools
- Lifting equipment to load material
- Clean white coveralls for flag people

Recommended Procedures and Precautions to Offset Hazards

- Hand holds to climb on and off equipment
- Use machine for heavy lifting
- Secure propane bottles and check for leaks
- Proper clothing and gauntlet gloves
- Watch for traffic
- Full set of signs
- Arrow board on four lanes
- Flag people on two lanes

Traffic Accommodation

Potential Health or Safety Concerns

- Traffic

Equipment, PPE and Apparel to be Used

- Signs
- Arrow boards
- Cones

Recommended Procedures and Precautions to Offset Hazards

- Watch for traffic
- Full set of signs
- Arrow board on four lanes
- Flag people on two lanes

4.18 Working around Gomaco

Purpose

The purpose of this procedure is to provide information for working safely around the gomaco.

Scope

The following procedure applies to all employees and outside contractors when working near the gomaco.

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Safe Work Guidelines

1. All gomacos are equipped with track guards. These guards will not be used as steps while the machine is in operation.
2. All gomacos are equipped with horns. The operator will sound the horn and check for clearance of ground people before moving the machine. Failure to hear the horn should be reported to the operator and the foreman.
3. All ground personnel shall stay in view of the operator at all times.
4. Ear protection (plugs) and all other tools shall be kept in the foreman's truck. No personnel should go into the machine tool box while the machine is running.
5. The rebar puncher operator has a cable kill switch for use if problems develop.
6. All safety concerns are to be reported to the foreman and the supervisor.

Ground Personnel

Hazards:

- Equipment working on site
- Loud noise
- Moving parts on Gomacos (drive tracks, conveyor belt, trimmer head and auger, rebar inserter)
- Operator visibility
- Drive tracks – building track ramps.

Recommended Precautions to Offset Hazards

- Stay in view of operators. Listen for, and respond to, backup alarms.
- Wear hearing protection as required.
- Stay clear of moving parts on Gomaco. Do not attempt to enter under the machine while the machine is in motion, or to repair any parts while systems are engaged. Inform operator of any such intention so the proper safety precautions can be taken.
- Stay visible to the operator at all times.

- When building track ramps, stop forward travel, position blocking securely, and insure all personnel are clear of tracks before proceeding with pour.

Chute Person

Hazards

- Redi-mix trucks
- Pinch points on discharge chute on redi-mix truck.
- Proximity of redi-mix truck to conveyor belt.
- Moving conveyor belt and tail pulley.
- Left front drive track.
- Splashing of concrete.

Recommended Precautions to Offset Hazards

- Stay in full view of redi-mix driver when directing truck into position.
- Ensure hands are clear when folding or unfolding chutes. Fold and unfold chutes in a controlled manner.
- Never position body between redi-mix truck and conveyor.
- There is a guard in place over the tail pulley. Do not attempt to clear concrete with hands.
- There is a fender guard in place over the left front drive track of the Gomaco and an extension tube on the fender to inform personnel of track location.
- Use proper hand and eye protection at all times to avoid coming in contact with splashed concrete.

Rebar Placers

Hazards

- Rebar inserter
- Splashing concrete
- Left front drive track on Gomaco
- Placer not visible to machine operator.

Recommended Precautions to Offset Hazards

- Be aware of pinch points. Place bar in guide. Ensure hands and feet are clear before engaging system.

- Ensure the splash guard is in place on the hopper to reduce the occurrence of splashing concrete. Use proper hand and eye protection.
- When placing longitudinal rebar, a minimum of two personnel must be used to feed bar. Emergency stop (button or cord) must be accessible.
- When placer is not visible to operator, a spotter must be used. E-stop must be accessible to placer at all times.

4.19 Gomaco Operation

Purpose

The purpose of this procedure is to provide guidelines for the safe operation of Gomaco concrete extrusion machines.

Scope

The following procedure applies to all employees operating gomacos.

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Hazards

- Moving parts – conveyor belt, trimmer head, auger
- Hydraulic systems under pressure
- Slippery surfaces
- Water under pressure, flying debris
- Pinch points when servicing machine
- Flying metal slivers and/or dust
- Machine instability when moving equipment off line
- Working alone
- Mounting and/or dismounting machine

Recommended Procedures to Offset Hazards

- Ensure all systems are in neutral position and engine is shut off before proceeding with service or repairs.
- Wear proper eye protection when connecting or disconnecting hydraulic fittings.
- Place all systems in neutral before proceeding with clean up.
- Practice good housekeeping. Ensure good footing and hand holds.
- Wear eye protection and gloves as a precaution against flying metal slivers, dust and flying debris.
- When moving the equipment off line, loading, or off-loading from trailer deck, follow the manufacturer's recommended track positioning.
- When working alone, the operator must be familiar with the "Working Alone Procedures" as outlined in Chapter 5 of the Safety Manual.
- Mount and/or dismount the Gomaco following the proper procedures outlined in the Safety Manual.

4.20 Guideposts

Purpose

The purpose of this procedure is to provide personnel with safe working procedures when installing guideposts.

Scope

The following procedures are to be used by all employees when installing guideposts.

Special Terms

OH&S OCCUPATIONAL HEALTH & SAFETY
PPE..... PERSONAL PROTECTIVE EQUIPMENT
SOP..... STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Key Steps Occurring

Assembling of vehicles, equipment, material and personnel.

Potential Health or Safety Concerns

- Climbing on and off vehicles
- Traffic
- Tools
- Underground lines
- Overhead power lines
- Side hills
- Rough terrain
- Gopher holes

Equipment, PPE and Apparel to be Used

- Full personal PPE and apparel
- Proper tools

Recommended Procedures and Precautions to Offset Hazards

- Hand holds to climb on and off equipment
- Tools in good condition
- Contact First Call to check for lines
- Check for overhead lines and maintain clearance to OH&S regulations
- Be aware of traffic
- Watch footing

4.21 Worksite Chemical Spill Reporting

Purpose

The purpose of this procedure is to provide a procedure for dealing with reporting of chemical spills on the worksite

Scope

The following procedure applies to all employees when dealing with chemical spills.

Special Terms

MSDS MATERIAL DATA SAFETY SHEETS

SOP STANDARD OPERATING PROCEDURES. SIMILAR TO
TECHNICAL PROCEDURES AND TASK ORIENTED
PROCEDURES.

Procedures

MSDS (Material Safety Data Sheets) must be available at worksites for chemicals as required in the Chemical Hazards Regulation.

Contacts

1. Fire Department 911
2. Ambulance 911
3. Health, Safety and Environment Department
4. 780-532-1790 Alberta Environmental Protection (24hr.) 1-800-222-6514
5. Alberta Environmental Protection (Calgary) 297-8271

Procedures to Follow

1. Identify what product has spilled and determine if you are able to control the spill.
2. Attempt to stop the leak or spill provided you do not place yourself at risk.
3. Leave the spill area. Shut off ignition sources and equipment whenever possible. Administer first aid if required.
4. Evacuate the danger area if necessary.
5. Report the details of the spill to the above-noted contacts as required.
6. Review the Material Safety Data Sheets to determine the degree of hazard associated with the chemical spill.
7. Secure the area determined by the quantity of chemical spilled and as directed by the MSDS.
8. Efforts should be made to contain the chemical from contaminating water sources, sewer systems, buildings, and other adjacent areas.
9. Ensure the MSDS is made available to all response personnel who arrive on site.

10. With guidance from response personnel, safety officer, environmental personnel and supervisor, clean up the spill and dispose of the contaminated material as directed.
11. Investigate the incident/accident to determine the cause and take corrective action. Replenish all supplies that were used.

4.22 Chemical Vegetation Control

Purpose

The purpose of this procedure is to make workers aware of the risks of handling and applying chemicals for control of roadside vegetation and to provide personnel with safe working procedures for chemical vegetation control.

Scope

The following procedures are to be used by all employees when chemically controlling vegetation.

Special Terms

PPE.....PERSONAL PROTECTIVE EQUIPMENT

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Key Steps Occurring

Equipment, PPE and Apparel to be Used

- Truck
- Tank/spray unit
- Back pack spray unit
- Emergency spill kit as per regulations
- Waterproof hat
- Appropriate clothing/coveralls
- Respirator
- Eye protection
- Long rubber gloves
- Rubber or synthetic apron
- Reflective safety vest
- Rubber boots
- All PPE as per environmental protection and code of practice

Procedure: Truck Mounted Unit

Operator must be licensed or under the supervision of a licensed pesticide applicator.

- Familiarize yourself with all operations of truck and equipment.
- Visually check all hoses, fittings and nozzles for damage or leaks and check for proper operation.
- Understand the chemical. Read label instructions.
- Know and use proper application rates.
- Make sure all safety equipment is in place and functioning.
- When spraying from road shoulder, always travel with the traffic.
- When spraying off-road, know the terrain. Watch for culverts, guy wires, and hidden obstacles. Be careful of wash-outs and steep slopes.
- Always know wind conditions. Do not expose yourself or others to spray drift. Do not allow spray to drift into traffic.
- When entering and leaving ditch, drive slowly and watch for traffic.

- Have an emergency plan in case of chemical spill or accident.
- Use approved methods of chemical disposal and equipment clean up.

Procedure: ATV / Off-Road Mounted Units

Operator must be licensed or under the supervision of a licensed pesticide applicator.

- Use proper PPE approved helmet, respiratory protection, and roll over protection system where applicable.
- Know your equipment. Be properly trained in the safe use of off-road and all-terrain vehicles.
- Check for leaks and proper operation of chemical application equipment.
- Know the terrain. Watch for culverts and other hidden obstacles. Use caution around wash-outs and on steep slopes.
- Avoid unnecessary crossing or traveling on road allowance.
- When crossing or entering roadway, be aware of traffic at all times.
- Always know wind conditions and do not expose yourself or others to spray drift.
- Have an emergency plan in place in case of spill or accident.
- Use approved methods of equipment clean up and chemical disposal.
- A permit is required to operate an ATV in the right of way.
- All standards and applicable legislation is to be met.

4.23 Operation of Chipper or Mulcher

Purpose

The purpose of this procedure is to provide personnel with safe working procedures for operation of a chipper or mulcher.

Scope

The following procedure is to be used by all employees when using chippers and/or mulchers.

Special Terms

CSA..... CANADIAN STANDARDS ASSOCIATION
PPE..... PERSONAL PROTECTIVE EQUIPMENT
SOP..... STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Potential Health & Safety Concerns

- Crushing of limbs or body
- Hearing loss
- Lacerations
- Debris in eyes
- Slips and falls
- Puncture wounds from flying debris

Personal Protective Equipment To Be Used

- Gloves
- Eye and face protection
- Hard hat
- CSA approved, construction grade 1, steel-toed boots
- Tight fitting clothing
- Safety vest
- Hearing protection

Recommended Procedures to Offset Hazards

- When operating a chipper or mulcher, ALL PROPER PPE MUST BE WORN.
- Chipper or mulcher must be on a solid, level surface.
- Ensure that all guards and covers are in place before operating the chipper or mulcher.
- Refer to the manufacturer's manual for operating instructions.
- When operating the chipper or mulcher, the crew should consist of a minimum of two (2) people.
- Never stand directly in front of the chute when feeding material. Position your body to the side of the material being fed into the chipper to reduce the potential for injury due to kickback.
- Keep hands away from and off the feed table.
- Feed material into the chipper at a smooth rate. Do not jam material into the feed table.

- When material is being fed into the chipper, stand away from the feed chute. Watch for sticks or branches to swing sideways.
- Do not allow the discharge chute to become plugged.
- **If material becomes stuck or jammed, SHUT THE ENGINE OFF before investigating and/or solving the problem.**
- When cleaning and/or unclogging the unit, **shut the unit off and remove the spark plug wires before beginning the procedure. NEVER USE YOUR HANDS TO CLEAR MATERIAL FROM INSIDE THE DRUM OR CHUTE. Use a stick or rod to clear material.**
- If the unit is to be towed, be sure not to exceed the manufacturer's specified speed limit. Ensure that the proper hitch is in place and is closed and locked.

4.24 Towing Compressor / Trailers

Purpose

The purpose of this procedure is to provide guidelines for the safe towing of compressors, tar kettles, trailers, and related equipment.

Scope

The following procedure applies to all employees when towing compressors, trailers, or related equipment.

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Safety Procedures

Before attempting to tow any equipment, be sure the vehicle to be used is adequate for the load. Once the unit is attached for towing, check the following:

1. Test the safety latch to make sure it is secure after closing it (whether pintle or ball hitches).
2. Make sure the safety pin is placed through the latch to prevent it from opening.
3. Make sure the safety chains are attached. There must be two chains, and they must be crossed to hold and support the tongue of the towed unit if hitch mechanism fails.
4. Inspect all components such as chains, bolts, pins, welds, and latches for cracks, excessive wear, and other damage. Inform supervisor and / or shop of any concerns.
5. Check condition of any power cords, and be sure lights are working, where applicable.
6. The person hooking up and / or driving must be competent to do so, or assisted by someone who is. Train employees in safe areas, out of traffic.
7. Drive safely according to load, traffic, road conditions, etc. Be aware that stopping distance increases when towing a load.

4.25 Planned Lifts and Suspended Loads (Hoisting and Rigging)

Purpose


The purpose of this procedure is to minimize the need for manual lifting and to provide safe guidelines for the lifting of loads up to 2000 kilograms. Examples of this type of load are concrete manhole rings or barrels, frame and covers, plate tampers, and other equipment, tools, and materials.

Note: This does not include cranes or hoists with a lifting capacity of 2000 kilograms or more. These larger lifts must be performed by professional and/or certified personnel. See OHS Code, Part 6 – Cranes, Hoists, and Lifting Devices.

Scope

The following procedures apply to all employees when using a machine or other types of lifting devices to lift equipment, tools, or materials.

References

-  OHS Code, Part 3 (Specifications and Certifications)
- OHS Code, Part 6 (Cranes, Hoists, and Lifting Devices)
- OHS Code, Part 14 (Lifting and Handling Loads)
- OHS Code, Part 21 (Rigging)
- Alberta Construction Safety Association (ACSA), SWP00051-1/1-Planned Lifts & Suspended Loads, and SWP00075-1/1-Rigging

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Safety Procedures

Supervisor, operator, and affected workers must ensure the potential hazards have been assessed and addressed before any lifts are performed.

1. The supervisor must ensure that information is available to the operator and affected workers to help them determine the weight of a load to be lifted.
2. Only a competent worker authorized by the supervisor may operate a lifting device. Other than hook up and taking up slack, operator must be sure area is clear of workers before making actual lift.
3. The supervisor must ensure all workers involved in hoisting and rigging are trained to inspect all components of the lifting device and rigging prior to a shift (or lift), and to be always on the lookout for defects such as cracked welds, stretched or cracked chain links, bent hooks, frayed rope or cable, cracked or stripped bolts, worn pins, and other concerns. This is in addition to the formal inspections that may be required (see Specifications and Certifications below). A worker must not use any lifting device or rigging that appears to be unsafe, and must inform the supervisor of any concerns.
4. The supervisor/workers must ensure that sharp edges on loads to be hoisted are guarded to prevent damage to slings or strap of rigging.
5. All rigging must not be subjected to a load at more than the maximum load rating (Working Load Limit) of the weakest component of the rigging (less if workers are being raised/lowered- OHS Code- Part 21).
6. The maximum load rating (Working Load Limit) of any rigging must be legible and conspicuous on the rigging if practicable, or available to workers on site.
7. All components of rigging devices, such as slings, ropes, cables, clips, ferrules, hooks, latches, and including matching components, **MUST** meet the requirements of OHS Code, Part 21 (Rigging).
8. The lifting capacity of any lifting operation is only as good as its weakest point. Supervisors/workers must ensure all components are compatible and have a sufficient load rating (working load limit).

9. If an operator is required to travel with a suspended load, the load must be positioned as close to the ground as possible. If visibility is restricted, guidance will be required.

IMPORTANT: WORKERS MUST NEVER PLACE THEMSELVES DIRECTLY UNDER A SUSPENDED LOAD, IN THE SWING ZONE OF A SUSPENDED LOAD, OR IN THE DANGER AREA TO THE SIDES.

Specifications and Certifications

The lifting equipment/machine and/or lifting devices must be used in accordance with the manufacturers specifications **OR**, if modified, by the specifications certified by a professional engineer. All certification must be in writing, stamped, ensure safety of workers, and be available with the equipment. All modifications must be professionally inspected at least once a year (see OHS Code, Part 3 for more information).

4.26 Backing up Procedure

Purpose

The purpose of this procedure is to provide guidelines for safely backing up vehicles and equipment.

Scope

The following procedure applies to all employees when backing up vehicles and/or equipment.

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Parking / Backing Up

1. Always park a vehicle or piece of equipment so that the first move when restarting is forward.
2. Avoid backing up whenever possible.

Backing Up Procedure

1. Circle your vehicle to check for obstacles, other vehicles, clearances (front, back, side and overhead).
2. Always look behind the vehicle.
3. Sound the horn frequently while backing up, even if the vehicle is equipped with a backup alarm.
4. Back up slowly, never at a speed faster than a walk.
5. Use a guide whenever possible:
 - (a) If you lose eye contact with the guide or employee, STOP immediately and locate that person prior to proceeding.
 - (b) If parked or stopped, always use proper braking procedures.
 - (c) Set the park brake.
 - (d) Put the transmission in the appropriate gear.
 - (e) Lower all raised equipment (blade, ripper, etc.).

4.27 Wheel Loader

Purpose

The purpose of this procedure is to provide safe working guidelines for working with the wheel loader.

Scope

The following procedure applies to all employees operating a wheel loader.

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Safe Operating Guidelines

1. Before equipment is started, walk around the machine. Visually inspect for oil leaks, low tires, vandalism, or any damage to equipment. Advise supervisor of any abnormalities.
2. Mount or dismount the wheel loader maintaining three point contact and continuously facing machine.
3. Operators are required to start their equipment prior to the start of their shift. Arrive early to allow for warm up.
4. Climb into the machine and be seated prior to starting the equipment. Start at idle speed. Check to see that all gauges are working and readings are normal, then climb out and inspect lights.
5. Move equipment slowly forward and apply brakes to ensure they are working properly. Check to see that the back-up alarm is working. Report any concerns to your supervisor.
6. Seat belts must be worn when the loader is in operation.
7. Use caution while operating on a slope and keep the bucket as low as possible while doing so.
8. Use caution while digging out a high bank or pile.
9. Never work under a raised bucket or in the center frame area without a securing device installed.
10. Never carry passengers in the bucket, on the steps or on the platform.
11. Know where all overhead and underground utilities are before commencing work.
12. Before dismounting the machine, set the park brake and lower the bucket to the ground.
13. Ensure the machine is locked out and unable to start when you are servicing or repairing the machine.
14. Allow the engine to cool before shutting the engine down.

15. After parking the equipment at the end of a shift, walk around the machine. Visually inspect, again, for oil leaks, low tires, or damage. Advise your supervisor of any problems.

4.28 Power Loss on a Steep Grade

Purpose

The purpose of this procedure is to provide safe operating guidelines for use in the event of power loss while operating on a steep grade.

Scope

The following procedure applies to all employees who operate equipment on steep grades.

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Safe Operating Guidelines

To ensure the safety of the traveling public and workers in the area, the operator of any equipment that has a power loss while on a steep grade should follow the procedure listed below:

1. Sound horn (if equipped). One long blast will warn workers in the area that you have a problem.
2. If you experience a loss of power on your piece of equipment while working on a steep grade, immediately attempt to activate the braking system. This may include the pedal brake, the emergency brake (if so equipped), or the parking brake.
3. If the braking system does not slow the piece of equipment down, attempt to turn the equipment so that it is at right angles to the ditch. Steer the piece of equipment into the ditch, if it is safe to do so without causing serious injury to yourself or others.
4. If you experience a loss of power, **DO NOT** attempt to restart the equipment by placing the shifter into neutral as this may cause the equipment to accelerate.
5. If the machine is in reverse, attempt to turn it to a right angle to the hill and drive it into the ditch, if it is safe to do so without causing serious injury to yourself or others.

4.29 Mounting / Dismounting Equipment

Purpose

The purpose of this procedure is to provide safe guidelines for mounting and/or dismounting equipment.

Scope

The following procedure applies to all employees when mounting and/or dismounting equipment.

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Mounting and/or Dismounting Equipment

1. Clean boots of mud before climbing onto equipment.
2. Keep steps on equipment clean and free of mud and clay.
3. Use handrails and steps on equipment to mount and/or dismount.
4. Always face the machine when getting on or off the equipment.
5. Maintain three-point contact at all times (two hands and one foot, or one hand and two feet).
6. Do not jump from the machine or attempt to get off while it is in motion.
7. Use extra caution under wet, muddy, or icy conditions.

4.30 Air Brake Adjustment

Purpose

The purpose of this procedure is to provide personnel with safe working procedures for adjusting air brakes.

Scope

The following procedures are to be used by all employees when adjusting air brakes.

Special Terms

CSA..... CANADIAN STANDARDS ASSOCIATION

PPE..... PERSONAL PROTECTIVE EQUIPMENT

SOP..... STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Potential health and Safety Concerns

- Crushing of limbs or body
- Banging head on undercarriage
- Sand, dirt, or debris in eyes

Equipment and PPE to be Used

- Gloves, eye protection, hard hat, overalls
- Construction grade 1, SCA approved, steel-toed boots
- Hand tools
- Wheel chocks
- Trouble light or flashlight
- Grease gun
- Penetrating fluid (e.g. WD 40)
- Tape measure or similar device to measure stroke

Recommended procedure and Precautions

- Park unit on level floor or ground.
- Lower all attachments (if unit is so equipped, e.g. Plow) to floor or ground.
- Place transmission in neutral.
- Make sure air pressure is a minimum of 100 lbs.
- Apply parking brake and block wheels with wheel chocks at the front and rear of tandems.
- Ensure the unit is secure.
- When unit is secured, release the park brake.
- Shut the unit off.
- Shut off master switch, if the unit is so equipped.
- Adjust brakes using proper tools.
- When adjustment is complete, ensure that the braking system is working properly before going to work.

- TEST THE BRAKING SYSTEM TO ENSURE EVERYTHING IS IN PROPER WORKING CONDITION.

4.31 Emergency Procedures for Portable Gauges

Purpose

The purpose of this procedure is to provide a procedure for dealing with accidents involving damage to a portable gauge including dealing with radioactive sources.

Scope

The following procedure applies to all employees when dealing with an accident involving portable gauges.

Special Terms

CNSC.....CANADIAN NUCLEAR SAFETY COMMISSION (FORMERLY AECB)
SOP.....STANDARD OPERATING PROCEDURES. SIMILAR TO TECHNICAL PROCEDURES AND TASK ORIENTED PROCEDURES.

Procedures

Emergency Procedures for Incident Involving Radioactive Sources

Whenever an accident or fire occurs, which results in damage to a portable gauge, the following procedures are to be implemented:

1. Establish a controlled zone having at least two meters radius from the device. Do not enter this area unless necessary.
2. If you must leave the area, have someone guard the area in order to prevent entry.
3. Inform the following company personnel immediately and establish a plan of action:

HSE Department 780-532-1790 (work)

4. Contact the Canadian Nuclear Safety Commission immediately at:

Calgary – (403) 292-5181 CNSC Reception Desk

Calgary – (403) 292-5785 Supervisor (normal working hours)

Ottawa – (613) 995-0479 Duty Officer (24 hour number)

Utilize CNSC Inspectors to establish exact procedure for handling the incident. CNSC must, by law, be informed within 24 hours.

5. If the damaged unit is located in an occupied area or in the way of vehicles or pedestrians, using a shovel, cable, or other long handled tool, move the device to a vacant area and establish a controlled zone.
6. If it is necessary to pick up any part of the damaged unit, use gloves. Place the pieces in a container, preferably inside a plastic bag. Keep hands at least six inches from the source. After handling, place the gloves inside the bag and close it.
7. In order to transport a damaged gauge for disposal or repair, special precautions may be necessary. Based upon the extent of the damage, the CNSC will be able to advise you on what precautions are necessary.
8. Before the controlled zone is returned to normal use, it will be necessary to ensure that all sources have been removed by means of a radiation survey or

a visual inspection taken. CNSC personnel must be in agreement and requested to verify area clear, if possible.

9. You must be aware of the location of the radioactive source(s) within the device. Cesium 137 sources are normally located in the lower end of the rod which is inserted into the ground and Americium 241/Beryllium or Radium 226/Beryllium sources are normally located inside the case. More information is located in your gauge manual.
10. As soon as possible, the source(s) must be tested for leaks (i.e. rupture of the source capsule).
11. DO NOT reuse the unit until its operation and safety have been verified.

Nuclear Gauge Storage Procedures

12. The nuclear gauge must be stored on the shelf in the asphalt trailer storage area.
13. The gauge, when stored, must be locked in the type "A" shipping container.
14. The storage room door shall be closed at all times.
15. Authorized persons restrictions must be enforced.

4.32 Tire Inflation Procedure

Purpose

The purpose of this procedure is to provide personnel with safe working procedures for inflating tires.

Scope

The following procedure is to be used by all employees when inflating tires.



Special Terms

PPE.....PERSONAL PROTECTIVE EQUIPMENT

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Equipment and Tools Required

- Clip-on air chuck
- Combination fill valve and tire pressure gauge
- Sufficient length of hose between clip-on air chuck and combination fill valve and tire pressure gauge (6 to 8 feet) to allow service personnel to stand outside the trajectory area in the event of a tire blow-out.

Personal Protective Equipment

- Hard Hat
- Safety Glasses
- Gloves

Potential Hazards (Health and Safety Concerns)

- Tire blow-out

Recommended Procedures and Precautions to Offset Hazards

- Check for broken or damaged lock rings and rims. These items must be repaired or replaced by qualified tire personnel only.
- Check for maximum tire pressure as indicated on the tire side wall.
- Check air pressure of the tire. The tire must not be inflated until the air pressure has been checked.
- If tires have less than 80% of the maximum air pressure in them, they must be inflated by a qualified tire person.
- Standard General Inc. service personnel must not inflate tires that are flat.
- Tires must not be inflated over the maximum tire pressure on the tire side wall.
- Maintenance personnel must be standing in a safe zone out of the trajectory area, listening and watching while inflating a low tire.

Training

- Standard General Inc. maintenance personnel will be trained in the above practices before inflating tires.
- Training in tire inflation will occur at start up meetings.

4.33 Welding & Burning/Cutting

Purpose

The purpose of this procedure is to provide personnel with safe working procedures for welding and burning / cutting.

Scope

The following procedures are to be used by all employees when welding and burning / cutting.

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Welding and Burning/Cutting

Employees are not to use burning/cutting or welding equipment unless authorized and are qualified to do so. Employees must wear the necessary protective clothing when cutting or using welding equipment.

Whenever possible, screens must be erected around any arc welding operation to shield other persons in the area from the flash of the arc.

Never look at a welding arc without proper eye protection.

Standard safety glasses should be worn under the welding helmet whenever possible.

The welding cables, stingers and ground clamps must always be in good condition. These must be replaced if damaged.

Prior to commencing welding or cutting, ensure that you know the location of the nearest fire extinguisher.

Oxy/Acetylene must always be stored and used in an upright supported position.

All leaks in the hose and/or connections must be repaired before the equipment can be used.

Bottle valves must be closed, and the hoses neatly coiled when the job has been completed or before going home at the end of the day.

Prior to any cutting operation, all flammable materials must be removed or covered with fireproof material.

When cutting is conducted in high places, provisions must be made to protect persons or equipment below from injury or damage caused by falling materials.

Proper eye protection must be worn when using a cutting torch.

All oxygen and their respective acetylene cutting equipment will have one way check valves (or flash arrestors) installed at regulators and at torch end.

You may be exposed to the following hazards:

Hazards

Hazards	Source	Protection
Heat Stress	Mainly in confined spaces	Adequate ventilation
Toxic Gases	From fluxes & thermal reactions with atmospheric gasses	Sufficient local exhaust & air fed hoods
Toxic Fumes	Metal vapor - coated work pieces of toxic metal paints, flux fumes	Sufficient local exhaust & air fed hoods
Noise	Explosive welding, resistance welding & plasma Arc welding & Arc air gouging	Ear protection when levels exceed accepted values
Radiation	Ultraviolet radiation from Arc processes	Gauntlets, face mask eye protection
Electricity	Transformer primaries, return & no ground, poorly insulated electrode holders etc.	Proper maintenance & knowledge of equipment
Burns	Hot metal splash, touching hot work pieces	Protective clothing & gloves. Mark work pieces "HOT"
Explosions	Flammable liquids & gases in containers being welded, mishandling of equipment, confined spaces	Thoroughly steam clean & check with Supervisor before welding
Fires	Welding slags & gas flames may ignite waste or other material	Good house-keeping essential, use of flame retardant enclosure to prevent scattering of hot slags

4.34 Confined Space Entry Procedure

Purpose

The purpose of this procedure is to establish a standard for the safety of workers entering confined spaces. This procedure will identify potential hazards and allow for a system of pre-planning that will eliminate or protect against these hazards.

Definition

Confined spaces are enclosed or partially enclosed spaces having restricted access and egress and which, due to its design, construction, location, atmosphere, the materials or substances in it or other conditions, is or may become hazardous to a worker entering it or does not have an easy means of escape for or rescue of a worker entering it.

References

Calibration and testing procedures for Air Quality testing equipment manufactured by Bio Systems Inc..

Occupational Health and Safety 3rd Edition Code of Practice Section 44-58.

Distribution

See Issue Log in Safety Manual

This procedure may be issued to contractors if they are required to enter a confined space.

Special Terms

WH&S Workplace Health & Safety

CSA..... Canadian Standards Association

Potential Hazards

"Fire and Explosion": Can occur when a flammable substance combined with air comes into contact with a source of ignition. Care must be taken during construction not to accidentally introduce flammable products into a confined space. Some potentially hazardous areas are the use of oxy/acetylene equipment, fuel spills, and the use of flammable products.

"Toxic Substances": Toxic substances can be produced from processes that can occur or has occurred in the confined space, work activities, waste material and sources outside the confined space.

"Falling Objects/Material:" Particular care must be taken when bringing material or equipment into confined spaces. Limited space increases the problem of workers being able to stay from under suspended loads and consideration should be given to this when planning the work. This hazard increases where other workers or an access way is located above work areas.

"Mechanical Equipment": Equipment that may pose a hazard to workers in a confined space must be isolated to ensure it cannot be energized. Some equipment may also have to be secured or supported if any potential for movement exists when it is de-energized.

"Electrical": Electrical shock can result from permanent installations in the confined space or temporary power from defective cords and cables. Temporary power cords and cables must be protected from mechanical damage and 110 volt circuits by ground fault interrupters.

ISOLATION

Blinds shall be placed in piping at the first flange as soon as the piping is connected onto any confined space. Safety blinds shall be of sufficient strength for hydro-testing to eliminate their replacement. Handles shall be painted red and numbered, these numbers shall be recorded in a blind log maintained by the area engineer. Blinds tags shall be noted "Do Not Remove - Confined Space. Blinds are the only excepted method of isolation for confined spaces.

Blinds lists shall be logged by system and equipment for

ease of reference. Blind lists shall be obtained and used by supervision requesting entry into confined spaces for the purpose of verifying blind location and installation.

A visual walk through, to verify isolations, must be conducted by supervision prior to applying for a confined space entry permit. System Blind lists and equipment drawings shall be utilized to support blind verification.

Some confined spaces may contain mechanical equipment or other moving parts that could pose a hazard to workers. Electrical isolation of power driven equipment or other power sources is to be done in accordance with Wapiti Gravel Suppliers Tagging and Lock Out Procedure.

VENTILATION

Before entering a confined space consideration must be given to ventilation and the possible hazards when opening covers, doors and man ways. Natural ventilation may be sufficient on large, open, new equipment but mechanical ventilation is recommended for all confined spaces. Common types of ventilation are local fume extractors and general ventilation equipment such as pneumatic air movers and electric fans. When a work activity involving welding, burning, cutting or use of a hazardous product is performed in the confined or enclosed space, ventilation must be maintained to ensure at least 2000 cfm/worker. If there is any possibility of flammable substances present all equipment must be explosion proof. Equipment must be located so that contaminated air containing such substances as exhaust gases and welding fumes are not drawn into the confined space.

LIGHTING

Lighting requirements will vary according to work activities and products being used. Explosion proof lighting shall be used where the potential for the presence of flammable products exist. As a minimum all 110 volt

lighting shall be protected by ground fault interrupters. Workers in confined spaces and safety watch personnel shall carry portable lighting in case of power failure.

**PERSONAL
PROTECTIVE
EQUIPMENT (PPE)**

If it is not practical to eliminate a hazard then PPE can sometimes be used to protect the worker against the hazard. Workers shall be trained and familiar with the use, care and limitations of PPE before using it. Some PPE that could be required for work in confined spaces are hard hats, foot protection, eye protection, gloves, coveralls, harness and lifelines, hearing and respiratory protection.

SAFETY WATCH

All confined space entries by Wapiti Gravel Suppliers shall have a safety watch posted outside the confined space and in communication with the workers inside. The safety watch will be identified by a blue vest.

Safety watches will be trained in their responsibilities.

Safety watch responsibilities include:

- Retain workers brass tags and place on tag board outside the man way to account for access/egress at the confined space
- Being familiar with the emergency reporting procedures
- Assist with rescue if required
- Ensure all necessary safety equipment required by the entry permit is in place and all required gas tests are current

- Be familiar with the use of all PPE and rescue equipment required by the safe entry permit
- Do not leave the area unless relieved by a qualified person
- Ensure the area and accesses are secure prior to leaving the area.

RESCUE

Confined Space Entry rescue plans will be developed by Wapiti Gravel Suppliers prior to initial entry.

On site equipment includes:

- emergency conveyance vehicle
- first aid supplies
- extrication/retrieval devices
- craneage, come-alongs, chain fall and ropes

The safety man should have as a minimum: an air horn (to summon help in an emergency), blue vest, and a means of communication with workers. Other equipment that may be required by the safe entry permit is lifelines, harnesses, respiratory protection, anklets, vertical retrieval tripods, etc.

TESTING

Testing of atmospheres for entry into confined spaces shall be done by a competent person trained and experienced in the use of testing equipment and entries into confined spaces. Gas test results shall be marked on

the back of the Safe Entry Tag. Equipment used for testing must be calibrated weekly, after any readings are registered or in accordance with manufacturers specifications. A record of calibration shall be maintained (Attachment 2).

Permits for entry into confined spaces will only be issued if oxygen levels are between 19.5% and 23%, and H₂S, LEL and CO levels are at zero.

In addition to initial testing, all confined spaces with the exception of excavations 5' or less will be continuously monitored with gas detection badge operated by safety watch from outside the vessel/excavation.

Safety watches shall record gas test results, on the confined space entry tag on an hourly basis.

TRAINING

All workers shall have this procedure reviewed with them prior to entering any confined space. Reviews specific to the work being performed in a confined space will be required, areas to be focused on include:

- Safe Entry Permits - familiar with specific requirements of the permit and safe work plans
- Isolation - workers familiar with tagging and lock out and blinding requirements
- Toxic Products - review of MSDS's for hazard awareness and safe handling procedures
- PPE - proper use and fit testing of equipment and its limitations. Information on MSDS will refer to specific requirements

- Fire Protection - trained workers. Proper type of equipment for fire hazard. Information on MSDS will refer to specific requirements
- Emergency Reporting/Rescue - All workers must be familiar with emergency reporting procedures and familiar with the use of any rescue equipment that may be required to use

DOCUMENTATION

All training records shall be maintained by the Wapiti Gravel Suppliers HSE Department until project completion.

All Confined Space Entry Permits shall be retained by the Wapiti Gravel Suppliers HSE Department until project completion.

ATTACHMENTS

Wapiti Gravel Suppliers Safe Entry Permit

Gas Detector Calibration Record

Confined space hazards are divided into three hazard levels. **Check with Provincial or Territorial Regulations, this below is a sample of what the hazards could be.**

4.5.1 Level 1

A Level 1 confined space tests free of hazardous atmospheres.

A Level 1 confined space shall be entered only where:

- There is easy egress from all accessible parts of the confined space.
- Mechanical equipment in the confined space is disconnected from its power, de-energized and locked out.
- All pipes and other supply lines whose connections are likely to create a hazard are blanked off, and their control valves closed and locked out.
- The confined space is tested and evaluated by a competent person who records the results of each test in a permanent record. They must also certify in writing in the permanent record that the confined space is free

from hazard. Finally, they must certify that the confined space will remain free from hazard while any employee is inside, having regard to the nature and duration of the work to be performed.

- The employee entering the confined space is equipped with a safety harness and lanyard.

Emergency equipment is located near the access port, including:

- An emergency alarm
- A fire extinguisher
- Extra self-contained breathing apparatus (SCBA)

4.5.2 Level 2

A Level 2 confined space may contain:

- Hazardous gas, vapor, dust or fumes
- Oxygen content of less than 19.5% or more than 23% at atmospheric pressure, but which can be purged and ventilated to provide a safe atmosphere

A Level 2 confined space shall be entered only when:

- All of the procedures applicable to Level 1 have been completed
- The space is purged and ventilated to provide a safe atmosphere
- Measures necessary to maintain a safe atmosphere have been taken
- Suitable arrangements have been made to remove the employee from the confined space should the employee require assistance
- A person adequately trained in artificial respiration is readily available

4.5.3 Level 3

A Level 3 confined space may contain:

- Hazardous gas, vapor, dust or fumes
 - An oxygen content of less than 19.5% or more than 23% at atmospheric pressure, but which cannot be purged and ventilated to provide and maintain a safe atmosphere.

A Level 3 confined space shall be entered only when:

- All of the procedures applicable to Level 1 have been completed, with the exception of the permanent record stating that the confined space is free from, and shall remain free from, hazard.

- The employee entering is using a suitable breathing apparatus and a safety harness, or other similar equipment. The safety harness or equipment must be securely attached to a rope, the free end of which is held by a trained employee standing by, outside the confined space. The standby employee must be equipped with an alarm in case of accident.
- The employee entering the confined space uses any equipment necessary to ensure his/her safety.
- The safety harness, rope and other equipment mentioned above have been inspected by a competent person, are in good working order and recorded in the permanent record.
- A person adequately trained in artificial respiration is readily available.

4.6 Explosive or Flammable Atmosphere Procedures

Where the gas or vapor in a confined space is likely to be explosive or flammable, the confined space shall be entered only where:

- The concentration of the gas or vapor has been tested by a competent person and found not in excess of 50% of the lower explosive limit of the gas or vapor
- The concentration of the gas or vapor has been recorded in the permanent record
- The only work performed is that of cleaning or inspecting, and of such a nature that it does not create any source of ignition
- Cold work may be performed in a confined space that contains, or is likely to contain, an explosive or flammable gas or vapor, where the concentration does not, and is not likely to exceed, 10% of the lower explosive limit (LEL) of the gas or vapor.

Code of Practice

Confined Space

This code of practice for entry into a Confined Space includes:

The following rules must be followed before entry into a Confined Space:

1. A confined space rescue plan must be drawn up and signed off by all participants in the task
2. Have permission from Supervisor.
3. A minimum of two employees will be present.

4. All entrances, exits or openings shall be flagged off with red lockout tape and/or signage to indicate that the space is identified as confined and entry other than through the designated access ways is unlawful.
5. In all traffic areas full road signage is required.
6. Intrinsically safe lighting that will provide sufficient illumination shall be used.
7. Be in possession of all safety equipment including an intrinsically safe flashlight, proper gloves, CSA approved rubber boots, and eye protection.
8. The confined space atmosphere will be tested by trained personnel to confirm that the atmosphere is above minimum OH&S requirement which is 19.5% for oxygen. Refer to the hazard assessment and the entry permit to determine if other testing is required.
9. If the atmosphere is o.k., then proceed while testing the atmosphere continuously, or ventilate the confined space continuously and test the atmosphere every 15 minutes.
10. When a hazardous atmosphere is detected or is present, do not enter. Contact Supervisor and Safety coordinator to develop a proper procedure or alternative method of completing the job.
11. Wear full body harness, attached to hoisting device and tripod, which is CSA approved.
12. Hoisting device manned continually.

Confined Space Entry (Asphalt Tanks)

The following rules must be followed before entering into an asphalt tank.

1. Have permission from Supervisor.
2. Proper personal protective equipment must be worn.
3. A minimum of two employees will be present.
4. Signage will be posted to show employee in the tank.
5. Lighting that will provide sufficient illumination shall be used.
6. Be in possession of all safety equipment including a flashlight.

7. Prior to entry, the space will be ventilated and ventilation will continue for the duration of the job.
8. Wear a body belt / harness attached to a rope.
9. The top of the tank must be manned continually.
10. **RESCUE PROCEDURE:** In the event of an injury, get help first, and then assist the injured person in exiting the tank. In the case of a serious injury (unconsciousness, fracture, etc.) call 911.

Rescue Procedure

In the event of an injury in a confined space, provide First Aid, call for help if required and assist the injured person in exiting the confined space.

As a watch person, never enter the confined space to provide first aid or rescue until someone has replaced you outside the confined space.

Where atmospheric conditions are a concern, never enter to attempt first aid or rescue until those conditions have been re-tested.

In the event of a serious injury (unconsciousness, fracture, shock, stroke, etc.) call 911, ask for help and ambulance. Stay with the injured person and provide First Aid, only if there is no risk to you.

**BE AWARE THAT MANY OF THE INJURIES OR FATALITIES THAT OCCUR IN CONFINED SPACE SITUATIONS ARE FROM WORKERS ATTEMPTING RESCUE AND BEING OVERCOME BY THE SAME CONDITIONS THAT CAUSED THE ORIGINAL EMERGENCY.
(Atmospheric conditions, etc.)**

NOTE:

- ◆ Any changes or deviations to these rules must be approved by the Safety Coordinator and Supervisor prior to entry.
- ◆ Failure to adhere to this policy will result in disciplinary action.

4.35 Lockout Procedures

Purpose

The purpose of this procedure is to protect any employee working on or around equipment which could be inadvertently started.

Scope

This procedure affects all personnel in all areas of the plant.

References

None

Distribution

See Issue Log in Safety Manual

Outside Contractors on site

Special Terms

ADSADDITIVE SILOS

MCC.....MOTOR CONTROL CENTRE

PHTPREHEAT TOWER

Documentation

Outside contractors must sign the “Contractors Safety Rules” to indicate they have been received and reviewed by their personnel working on the plant site. Refer to SM4.3 (4).

Safety Lock Removal Form to be completed in accordance with Procedure SM4.3 (24).

Procedures

General

The purpose of the lockout procedures established at Standard General is to protect, in the simplest and most positive manner possible, any employee working on or around equipment which could be inadvertently started.

Most equipment in the plant can be safely locked out by the individual employee in conjunction with the area field operator and/or the central control operator; however, several of the major pieces of plant equipment require a more elaborate lockout procedure in order for it to be rendered safe.

Padlock, Scissors

Each employee, upon hiring, is issued a personal padlock to be used exclusively for protective lockout procedures. Each employee is required to carry this lock with him during all working hours. If additional locks are required for a specific job they may be obtained from the employee's Supervisor. Only approved locks may be used.

Each padlock will be identified with the employee's name and/or a control number in a manner approved by the Central Safety Committee.

Spare keys for all Maintenance employees are kept in the "spare key cabinet" in the Maintenance office.

Spare keys for all Production employees are kept in the "spare key cabinet" in the Shift Supervisor's office.

Periodic safety lock audits will be carried out by each Supervisor to ensure each individual has the proper lock and that it is in good condition.

In some cases scissors may be issued so that several people can lock out one switch.

Normal Lockout Procedures

No employee is to work on, enter or approach the unguarded parts of any machinery until he has locked out the power supply with his own padlock in such a manner as to make it impossible for the machine to be started.

The normal lockout procedure for electrically powered equipment is:

1. Inform the Supervisor and the person immediately responsible for the operation of the equipment of your intention to lock it out.
2. Have the equipment shut down in the normal manner and visually ensure that it has stopped. Do not use disconnect switches to stop machinery.

3. Pull the power supply disconnect switch for the equipment to the 'OFF' position and place your personal lock on the switch. An attempt should be made to put the switch back to the 'ON' position to ensure that it is correctly locked out.
4. Test start the equipment from the field using the HAND-OFF-AUTO switch and START push button. Also contact the central control operator to ask him to attempt to start the equipment even if it indicates "RED" in Central. If it will not start by these means, then the equipment is safely locked out. A radio should be used to contact the central control in isolated areas where there is no ready access to a phone.
5. The employee working on the locked out equipment must keep the key for the padlock on his person until he has completed working on the job and removes his safety lock.
6. If an employee is required to lockout more than one piece of equipment in order to do his work and there is no designated 'lockout box', he must obtain extra safety locks from his Supervisor in order to be able to lock out each piece of equipment and keep the key for those locks in his possession. Scissors are available from the Supervisor or stores when there are more locks to be attached than there is room for on a switch.
7. Again as in paragraph d), attempt to start each piece of equipment locked out. If it fails to start, then the machinery is safely locked out.
8. Immediately upon completion of the job, all locks are to be removed and power restored to the equipment. The last employee to remove his lock will inform his Supervisor and the person immediately responsible for the operation of the equipment that he is finished.
9. Lockout Procedures: Contractors

Contractors must be familiar with all the safety rules of the Company and each department. It will be the responsibility of the Company contact to ensure that this occurs.

When commencing a job, the Company contact will assist the contractor in locking out the necessary equipment and will place a supervisory padlock on the equipment. Scissors will be used for multiple locks.

The contractor will then apply his padlock(s) to the scissors. An attempt will be made to put the switch back to the 'ON' position to ensure that it is correctly locked out and an attempt made to start the equipment in a manner

similar to the normal lockout procedure for all electrically powered equipment.

It will be the joint responsibility of both the Company and the contractor's representative to ensure that all padlocks and the supervisory lockouts (including scissors) are removed at the end of each day to allow use of the equipment if necessary. All locks should be left on when there is no need to run it, or if it is impossible to run the equipment during a major contractor repair job.

4.36 Entering Feed Bins

Purpose

The purpose of this procedure is to provide personnel with a safe procedure for entering feed bins.

Scope

The following procedure applies to all employees when entering feed bins.

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

General Precautions

No worker shall enter or repair the feed bins without prior authorization from the plant supervisor

Safety Procedures

1. Before beginning any work on the feed bins, inform the plant operator and the loader operator of your intentions.
2. Ensure all electrical components, including bin feeders, conveyors, shakers and vibrators, are all locked out.
3. Decide the scope of the problem and obtain assistance to help with the repair if necessary.
4. To block access by the loader, place a barricade in front of the bins.
5. Red lock out tape must be erected on the front of the bin where there is a worker inside.
6. Workers must use a ladder to climb into or out of the bin.
7. When work is completed, notify the supervisor.
8. Remove the red lock out tape, the barricade and the electrical lockout.
9. Do not make any repairs to the bins, bin feeders, etc. while in operation.

4.37 Lockout Procedure for Recycle Hopper (Bin #9)


Purpose

The purpose of this procedure is to provide personnel with a safe lockout procedure for the Recycle Hopper.


Scope

The following procedure applies to all employees when working on, entering, or approaching the unguarded parts of the recycle hopper.

References

 Safe Work Procedures – Lockout Procedures

Distribution

 See Issue Log in Safety Manual

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

General Precautions

Lockout

No employee is to work on, enter, or approach the unguarded parts of the recycle hopper until he has locked out the power supply with his own padlock in such a manner as to make it impossible for the conveyer to be started. The padlock must contain the person's name for identification.

Tag-out:

Note: If lockout is prior to May 1, 2004, then it must be accompanied by a tag-out. The tag must show "Do Not Operate", date of lockout, and the printed name and signature of the person who has locked it out. The removal process for a tag must be the same as a lock. Tags can be obtained from the supervisor.

Safety Procedures

1. **Location:** The electrical supply breaker for the recycle hopper is labeled "Breaker Recycle Feeder CB32" and can be found in the electrical panel in the control tower.
2. Assess whether any other conveyors or equipment in the area need to be locked out so as not to pose a threat to safety.
3. **ALL** lockouts must be done by following the lockout procedures in section SM4.3 of the Safety Manual.

4.38 Confined Space Entry Feed Bins

Purpose

The purpose of this procedure is to provide personnel with a safe procedure for entering feed bins that may be, or have the potential to be, a confined space.

Definition

As defined in Section 1 of the WH&S Code, a confined space is an enclosed or partially enclosed space that is not designed, or intended, for continuous human occupancy, with a restricted means of entry, and may become hazardous to a worker entering it because:

- a) of its design, construction, location, or atmosphere
- b) of the work activities, materials, or substances in it
- c) the provision of first aid, evacuation, rescue, or other emergency response service is compromised, or
- d) of other hazards relating to it.


Scope

The following procedure applies to all employees when entering feed bins.

References

 OH&S Code

Distribution

 See Issue Log in Safety Manual

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

OH&SOccupational Health & Safety

Procedures

General Precautions

No worker shall enter or repair the feed bins without prior authorization from the plant supervisor

Safety Procedures

1. Supervisor and Worker shall assess the possible hazards and document them. This documentation shall include the method to be used to eliminate or control the potential hazards.
2. Fill out an entry permit form with your supervisor.
3. The Worker and Supervisor shall refer to Section 56 of the OH&S Code to determine if a tending worker with a gas monitoring device is required.
4. Before beginning any work on the feed bins, inform the plant operator and the loader operator of your intentions.
5. Ensure all electrical components, including bin feeders, conveyors, shakers and vibrators, are all locked out. Refer to lockout procedures.
6. Decide the scope of the problem and obtain assistance to help with the repair if necessary.
7. To block access by the loader, place a barricade in front of the bins.
8. A red flag must be erected on the front of the bin where there is a worker inside.
9. Workers must use a ladder to climb into or out of the bin. The ladder must be secured at the top unless using a step ladder.
10. When work is completed, notify the supervisor.
11. Remove the red flag, the barricade and the electrical lockout.
12. Do not make any repairs to the bins, bin feeders, etc. while in operation. Make sure the unit is electrically locked out.
13. Sign off entry permit form.

4.39 Opening and Closing the Grizzly on Recycle Bin

Purpose

The purpose of this procedure is to provide personnel with a safe procedure for opening and closing the grizzly.


Scope

The following procedure applies to all employees when opening or closing the grizzly.

References

 None

Distribution

 *See Issue Log in Safety Manual*

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

General Precautions

Note: the grizzly is designed to be completely removed and placed on the ground for access to the feed bin.

Safety Procedures

1. Lock out all power to the recycle conveyor and accessories.
2. Assess the competency of involved personnel.
3. Assess the bin, grizzly, and surrounding area for potential hazards.
4. Assess grizzly, bolts, bin, and welds for excessive wear, cracks, or other damage.
5. If grizzly is to be removed, remove bolts connecting the grizzly to the recycle bin. If ladder is required, make sure it is secured at the bottom and tied off at the top.
6. Prepare the area to be used to receive grizzly.
7. At no time should any person be under the grizzly when it is being removed or replaced.
8. Equipment for lifting must be adequate for the load. Refer to "Proper Lifting Practices".
9. The asphalt grizzly screen weighs approximately 3,000 pounds (1,400 kg).
10. Use a 4-point lift system with a minimum of 5,000 pound (2,300 kg) working limit. Hook a single line into each one of the four lifting lugs in the corners of the screen.
11. Angle of the individual lift lines should be no more than 45 degrees from vertical. Individual lines must be a minimum of 10 feet (3m) in length.
12. The hoisting crane must be rated for a minimum lift of 3,000 pounds at the required distance from the load. Note that the load may increase if binding occurs when the screen is removed from the bin. Caution is required; do not

exceed the rated lifting capacity of the crane or the lifting lines at any time throughout the lift.

13. If plans are to enter the bin, refer to “Safe Work Procedures for Entering Bins”.
14. If hazards determine it to be a confined space, refer to “Confined Space Entry (Feed Bins).”

4.40 Raw Materials Stockpiling & Removal

Purpose

The purpose of this procedure is to provide a means of ensuring safe removal of materials from stockpiles.

Scope:

The following Safety Procedures apply to all aggregate stockpiles.

References

None

Distribution

See Issue Log in Safety Manual

Special Terms

Fissure.....A narrow opening, a crack or separation

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Stockpiles

1. A safe slope away from the top of the stockpile to the base must be maintained.
2. Stockpiling during the winter presents special problems. Frozen layers may persist throughout the summer months, producing top heavy walls and overhangs, especially when rain saturated. A fissure may occur well back of the working face releasing tons of material. Sharp edges must be broken down to minimize this hazard.
3. All employees are responsible for informing their immediate Supervisor of any unusual or apparent dangerous formation developing in any stockpile. Supervisors will direct the corrective action to be taken in such instances.

Moving Stockpiles

1. During the absence of a Supervisor, the front-end loader operator is in complete charge of loading operations. His directions will be complied with by hired truckers as well as company drivers. In the event of non-compliance with his instructions, loading operations will cease and the plant supervisor or superintendent informed immediately.
2. Loader operators must work the breadth of the stockpile face and strictly avoid the creation of concave, tunnel or overhanging workings.
3. Personnel must not approach stockpile faces on foot while loading operations are in progress.
4. All truck drivers will wait their turn in line well away from the stockpile and loading operations point.
5. When called for loading, drivers will position their vehicles facing away from the stockpile. Drivers shall remain inside their vehicle cabs during loading operations.
6. In the event of vehicle breakdown or the need for adjustments, the vehicle is to be moved well clear of the stockpile before adjustments or repairs are made.

Regulations are no substitute for the exercising of good judgment and common sense. Be alert to changing conditions which surround you.

4.41 Tar Loading

Purpose

The purpose of this procedure is to provide personnel with safe working procedures when loading tar.


Scope

The following procedures are to be used by all employees when loading tar.

References

 None

Distribution

 *See Issue Log in Safety Manual*

Special Terms

CSA.....CANADIAN STANDARDS ASSOCIATION

Procedures

Note: Any personnel not familiar with tar loading procedures should review these procedures with a trained Standard General employee.

1. Ensure that all bare skin is covered. This includes the mandatory use of long sleeves, gloves, a full face shield, and CSA approved Grade 1 Steel toed boots.
2. Tar person must have eye contact with pump operator.
3. Tar person must give the pump operator a hand signal to start the pump.
4. When loaded, the tar person must again wave to the pump operator to stop the pump.
5. The nozzle must then stay in the tar tank while the pump operator reverses the pump to clear the line of any excess tar.
6. Then the pump operator asks for the nozzle, the tar person can slowly pass the line down being careful to point the nozzle away from anyone nearby.

Special Considerations

1. If eye contact between the tar person and the pump operator is obscured, there must be another person available to maintain proper communication between the two people.
2. When the front end loader is parked under the plants reject chute, do not park in the tar loading area.
3. If you have any questions or concerns, please do not hesitate to talk to any Wapiti Gravel Asphalt Plant employee.

4.42 Asphalt Cement Sampling Procedures


Purpose

The purpose of this procedure is to provide guidelines for safely retrieving a sample of hot asphalt cement.


Scope

This method describes the procedures for sampling bitumen from truck mounted sampling valve, truck discharge valve and sampling from the storage tank.

References

-  Western User Producer (WUPe), American Association of State, Highway and Transportation Officials (AASHT), Alberta Transportation.

Distribution

-  *See Issue Log in Safety Manual*

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

General

Equipment Required

- (a) Two 1 liter sample containers – clean metal cans, free of water, dirt of any other foreign matter
- (b) Dipping can – 2 liter container attached to 3 meters of wire
- (c) Safety gloves, face shield, protective clothing

To be meaningful, a sample of asphalt must be representative, and must be handled carefully so that it does not become contaminated or altered before being tested.

All samples must be obtained by the Lab Technologist or Plant personnel trained by the Lab Technologist. The sampler must be fully familiar with the correct sampling procedures. If unsure, contact your company QC Manager or Plant site supervisor, as procedures may vary slightly from site to site.

Personal Protective Equipment must be worn.

Sampling Using the Sampling Valve

Notify the truck operator before obtaining the sample. If the sampling valve is plugged, it is the responsibility of the truck driver to unplug the valve.

1. Ensure valve is in the closed position.
2. Remove cap at end of spout.
3. Make sure opening in the spout is not plugged with solidified asphalt.
4. Stand away and upwind from the sampling valve and open the valve.
5. Bleed off about 2 liters of asphalt into a container to clean out the line then close the valve.

6. Wrap a sheet of paper around the sample container, covering it entirely. This will help keep the exterior of the container clean while sampling.
7. Hold the sample container under the spout and open the valve very slowly, so that the asphalt stream is slow and steady.
8. Fill 2 one liter cans to within 20mm of the top and turn off valve.
9. Clean spout and replace metal cap.
10. Loosely place the lid on the container immediately after sampling to prevent contamination.
11. Place samples in a protected area until sample cools, secure cap.
12. Fill out Plant oil delivery log book and sample Identification sheet.
13. Send sample to GECAN for testing.

Sampling from the Discharge Line

**This method must be performed with the truck driver's assistance.
Extreme caution must be taken to avoid burns.**

1. Have a truck driver unload 25% of load and close valve
2. Driver to disconnect hose at discharge.
3. Wrap a sheet of paper around the sample container, covering it entirely. This will help keep the exterior of the container clean while sampling.
4. Hold the sample container under the spout and open the valve very slowly, so that the asphalt stream is slow and steady.
5. Fill 2 one liter cans to within 20mm of the top and turn off valve.
6. Driver to proceed with reconnect and unloading oil.
7. Loosely place the lid on the container immediately after sampling to prevent contamination.
8. Place samples in a protected area until sample cools, secure cap.
9. Fill out Plant oil delivery log book and sample Identification sheet.

10. Send sample to GECAN for testing.

Sampling from Storage Tanks

1. Inform the plant operator of your intentions, and to provide you with a spotter while you retrieve your sample.
2. Using the available cat walk position yourself on top of the storage tank near the hatch.
3. Using a clean bucket, lower into the liquid asphalt and dip sample.
4. Bring the sample to the top of the tank and pour into sample containers. Repeat until the desired quantity has been taken.
5. Loosely place the lid on the container immediately after sampling to prevent contamination.
6. Leave samples on top of tank until such time they have cooled then secure cap and prepare for shipping.
7. Fill out Plant oil delivery log book and sample Identification sheet.
8. Send sample to GECAN for testing.

Note: Whenever possible samples should be taken from the truck sampling valve, however, there are times when this is physically not possible and an alternate source may be required.

4.43 Ignition Oven (Asphalt Laboratory)

Purpose

The purpose of this procedure is to provide personnel with safe procedures for using the ignition oven in the Asphalt Laboratory.


Scope

The following procedure applies to all employees when using the ignition oven.

References

 None

Distribution

 *See Issue Log in Safety Manual*

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

General Precautions

The extreme heat generated by the ignition oven requires special attention be given to the following safety procedures.

Safety Procedures

1. When placing samples in, or removing samples from the oven, removal forks must be used. These forks were supplied with the oven when it was purchased.
2. When a sample is removed from the oven to cool, the provided heat shield must be used.
3. A face shield and high temperature resistant gloves are supplied. These items **must** be used each time the oven is being operated. The gloves should not be used for any other function.
4. All personnel operating the oven must wear non-synthetic clothing; long sleeved cotton shirts are recommended.

4.44 Coring Procedure

Purpose

The purpose of this procedure is to provide personnel with a safe coring procedure.


Scope

The following procedure applies to all employees when coring.

References

 None

Distribution

 *See Issue Log in Safety Manual*

Special Terms

SOP.....STANDARD OPERATING PROCEDURES. Similar to Technical Procedures and Task Oriented Procedures.

Procedures

Potential Hazards (Health and Safety Concerns)

- Working in close proximity to traffic
- Other potential job-site hazards.

Safety Procedures

1. Complete a work site hazard assessment prior to the start of coring operations.
2. All personnel must wear appropriate personal protective equipment. Ensure there is proper lighting and visibility.
3. If traffic must be stopped or detoured, appropriate traffic control devices must be used.
4. The coring operator must position himself in such a manner that the oncoming traffic remains in his line of vision.

4.45 Lockout Procedure for Mobile Maintenance Equipment

Purpose

The purpose of this procedure is to provide personnel with a safe procedure for performing maintenance on mobile equipment.

Scope:

This procedure applies to all personnel performing or assisting with maintenance and servicing of mobile equipment.

References:

SGI “: Lockout Procedures”; Penn State University (PSU) Lockout Training PowerPoint.

Distribution:

☞ *See Issue Log in Safety Manual*

Procedures

1. Where the ignition is controlled by a keyed switch, the key shall be placed in the “off” position, REMOVED, and TAGGED with a “DO NOT OPERATE” tag. Place the tag where it is visible, close to the ignition area.
2. Vehicles without a keyed ignition shall be tagged with a “DO NOT OPERATE” tag at the point of ignition.
3. In the event that tagging and removing the keys are not adequate protection, disconnect battery cable end and install a second “DO NOT OPERATE” tag.
4. Install wheel chocks to ensure equipment cannot roll in either direction.

When equipment needs to be started during maintenance, use alternate measures for protection. Do not place body parts in point of operation or near moving parts. Operation control must be under the direction and control of one person.

Always keep in mind that there are many types of energy sources (i.e.: electrical, pneumatic, hydraulic, etc.). Some can be turned off, while others can be only dissipated or controlled. All sources must be considered and controlled before proceeding with maintenance.

Refer to Safety Manual for lockout/tag information for other types of equipment.

4.46 Control of Hazardous Energy

Purpose

The Company has established a common and systematic approach to eliminate the risk of incidents that may arise from the unexpected release or unplanned activation of an energy source that could endanger lives and property at Company worksites.

Scope and Application

Isolation of Hazardous Energy is the primary and preferred method to control a source of energy before performing maintenance on a system or equipment. The proper implementation of an effective hazardous energy control program will include a written, standardized procedure, necessary training and responsible supervision. In conjunction with local legislation, the requirements found in this code of practice shall be the minimum standard of controlling hazardous energy while performing work on a Company worksite and applies to all employees, workers, contractor and visitors performing work on a Company worksite.

Isolation of Hazardous Energy is required when:

- Guarding or safety devices need to be removed or bypassed; or
- Individuals may be exposed to hazardous energy when performing tasks (e.g. pressurized systems).

When tasks are routine, repetitive and integral to the production process, or traditional energy isolation to complete the tasks is not possible, then alternative control methods that provide effective protection shall be used.

This Control of Hazardous Energy Code of Practice applies to tasks on all equipment except:

- ✓ pre-shift inspections, fueling, and other similar tasks as determined by risk assessment/FLRA.
- ✓ tasks on electrical cord connected equipment (e.g. Hand held portable power tools, when exposure to the hazards of unexpected energization, start-up or release of hazardous energy is controlled by:

- unplugging the equipment from the energy source, and
- the plug is under the exclusive control of the individual performing the task.

This code of practice is mandatory and applies to all Company employees, contractors, transporters, vendors, visitors, sites, plants, construction projects and offices.

The Company shall respect all energy isolation related laws and regulations that are more stringent than the requirements specified in this Policy.

Definitions

The following definitions are specific to this *Control of Hazardous Energy Code of Practice*. This list is not to be considered exclusive and additional definitions may be required for specific applications as out lined in Company Standard Operating Procedures.

“Blind” means a metal disk placed in a pipe capable of withstanding the maximum pressure of the system to ensure that no air, steam, or other substance will pass through that point if the system is accidentally activated.

“Blocking” means special brackets or stands such as those used under a raised vehicle or equipment. Blocking must be placed under raised dies, lifts or any equipment that might inadvertently move by sliding, falling or rolling;

“Double block and bleed” means a pipe isolation system that incorporates two in line valves and a “bleed” valve between the in line valves. The system is lockable and/or requires excessive force to operate without specialized equipment;

“Bump test” means that once equipment has been locked and tagged out, an authorized worker shall ensure all personnel and tools are clear, then test or

“bump” start the locked out equipment as a final check to ensure that the lockout is successful;

“*Company*” means company name and affiliated businesses;

“*De-energize*” means to deal with energy that already exists by draining or relieving residual energy sources such as air or hydraulic lines, tension on springs, dissipating stored electrical or thermal energy or negating the effects of gravity so that the stored energy will not result in inadvertent movement;

“*Energy source*” means any electrical, mechanical, hydraulic, pneumatic, chemical, thermal, gravitational or other source of energy. This can exist in the form of parts movement such as equipment rolling or stored energy such as coiled springs or suspended loads;

“*Group lockout*” means a set of locks used to isolate energy sources (active or potential) in a system. When more than one lock is required to isolate a system, a lock box procedure will be used. A supervisor will accompany an authorized worker to place group locks on appropriate energy isolation points. The energy isolation key(s) for the group locks will be placed in the lock box;

“*Isolation tag*” means a recordable, tag that is to be attached to the lockout location;

“*Live work*” means work that requires the equipment to be running in order to perform work. A written Job Hazard Analysis and Standard Operating Procedure must be available and reviewed for such work;

“*Lockout*” means to prevent the energization or an undesirable activation of a system. This requires the use of one or more locks to physically secure isolation of all energy sources in order to render the machinery or equipment inoperable. This must be in accordance with a written procedure;

“*Lockout adaptor*” means a device that enables multiple locks to be placed on the same lockout point. After the work is completed, each worker removes their lock and only upon removal of all locks can the equipment be returned to operation.

Responsibilities

Employees

It is the employee's responsibility to:

- Refuse to perform any work which they feel is unsafe or for which they have not been properly trained to perform
- Through adequate training, be responsive to minimize the risk of exposure to potentially harmful work environments through the requirement of hazardous energy isolation
- Not attempt operation of any switch, valve or other energy isolating device bearing a lock
- Report any violation or infraction of this code of practice to their supervisor

Supervisors

In addition to employee responsibilities, it is the supervisor's responsibility to:

- Immediately correct any violation or infraction of this code of practice which did or could have resulted in incident or injury or property damage at the work site.
- Administer any discipline or corrective action necessary to ensure compliance with this code of practice and document appropriately.
- Ensure all workers have received adequate training in the application of this code of practice
- Ensure workers are aware of specific procedures to safely isolate energy sources on equipment in their work area
- Ensure workers have been assigned a lock (or locks) with only a single key to be used for application to lockout devices
- Provide feedback to the Corporate HSE manager to facilitate continuous improvement of this code of practice
- Oversee the process of removing a lock which was abandoned by a worker or otherwise left on equipment during a lock out procedure
- Coordinate all tasks between contractors who will require energy isolation to perform work on a Company worksite

Management

In addition to employee and supervisor responsibilities, it is management's responsibility to:

- Ensure that all necessary resources are available to safely and effectively carry out an energy isolation procedure
- Ensure compliance with this code of practice by all levels of the company including workers, contractors and others present at the worksite
- Establish adequate training and monitoring for compliance through the use of HSE personnel
- Ensure a hazard assessment is conducted and adequate procedures are developed and implemented to ensure effective isolation procedures

Training

A competency based training program shall be in place to train affected individuals and to qualify authorized and responsible individuals before they perform an energy isolation procedure. This shall include training on the following topics: the code of practice, the lock out procedure, recognition of energy sources, energy isolation permit requirements, removal of locking/tagging devices, and other site-specific program requirements, as appropriate and which would include practical exercises.

The competency and proficiency of each individual shall be evaluated and documented. This shall be completed by a post-training assessment for each participant such as written examinations and successful completion of practical skills exercises.

Refresher training may be required on a periodic basis to address regulatory requirements, site-specific procedural changes, after energy isolation incidents, and the introduction of new equipment, etc.

Lock Out Procedure

Simple Isolation Method

When one or more authorized individuals is required to perform a task on the same equipment that has one or more energy isolating devices, each authorized individual shall place a personal lock and identification tag on all energy isolating

devices. If the energy isolation device cannot accommodate all the locks to be applied, then the authorized individual shall utilize a lockout adaptor to hold all the locks to be applied. All authorized individuals shall perform the energy isolation sequence in accordance with this code of practice.

Complex Isolation Method

When more than one authorized individual is required to perform a task on equipment having one or more of the following conditions, then complex isolation method shall be implemented:

- A large number of energy isolation devices or authorized individuals are involved
- The period of energy isolation is extended (e.g. more than one shift);
- The energy isolation devices are relatively inaccessible; or
- There is interdependence and interrelationship of the equipment components.

Under complex isolation methods, a supervisor and an authorized worker shall be assigned the overall responsibility and authority for the isolation sequence and shall ensure continuity of lockout protection. This may be accomplished by using a lockbox or complex isolation board system.

All keys to the designated equipment locks are placed in one lockbox or complex isolation board. The lockbox or complex isolation board shall be locked by the responsible individual with a single controlling lock and key. The responsible individual shall keep the controlling key under their exclusive control. All authorized individuals shall affix their personal lockout device on the lock box and keep their personal lock key under their exclusive control.

During a shift change, individuals responsible for the isolation sequence shall advise the alternative responsible individual of the current status of the isolation, tasks being performed, and other relevant information. At the completion of the briefing, the alternative responsible individual shall place his controlling lock on the lockbox or complex isolation board and the off-going responsible individual shall remove their controlling lock. The alternative responsible individual shall have exclusive control of the controlling lock and key.

The controlling key is not a master key and shall not be configured to override (i.e. open) individual locks.

At no time shall any individual remove another individual's personal locks or tags except when removal is required as described below.

Energy Control Sequence

The following steps outline the mandatory isolation sequence that shall be followed prior to performing any task on equipment to ensure all energy sources have been isolated and placed into the zero energy state. Only authorized and responsible individuals, without exception, are allowed to perform mandatory isolation sequence. The mandatory isolation sequence is:

Prepare

The authorized individual shall prepare for the task by: reviewing the work order, filling out an FLRA, completing the isolation Permit.

Notify

Prior to performing a task on the equipment, the authorized or responsible individual shall notify all affected individuals in the area that the equipment will be isolated.

Turnoff / Shutdown

The authorized individual shall turnoff (i.e. off position), shut-down and de-energize the equipment as required.

Isolation

All energy isolating devices to control hazardous energy within the equipment shall be positioned in such a manner as to positively isolate the equipment. Positive isolation shall be achieved by using energy isolating devices (i.e. disconnect switches, line valves, blocks, blinds, etc.) and not the equipment operating controls (i.e. on/off button, emergency stop button). Physical barriers (e.g. flanges) shall be equipped with a locking device. When the isolating devices are designed with visual disconnects/isolations, it must be verified that disconnect / isolation has occurred.

Apply Locks

One Lock, One Person, One Energy Source - Locks shall be applied to the energy isolating device or lock box. Each authorized individual working on the equipment shall without exception be responsible for attaching their personal lock(s) and isolation tag(s). Lockout of each energy isolating device shall be done with the approved lockout device.

Zero Energy State

All energy including stored or residual energy shall be relieved, blocked, bled, restrained or otherwise rendered safe (i.e. to achieve the zero energy state). Where stored energy has been determined to be a hazard, a means for non-hazardous dissipation or safe restraint of the stored or residual energy shall be established.

Bump test / Verification

After ensuring that all individuals are clear of the equipment, the authorized individual shall attempt to operate the normal operating controls to ensure the correct equipment has been de-energized and will not operate. The operating controls shall be returned to the neutral or off position after the tryout testing. If the equipment operates, it shall be shutdown and the supervisor notified.

Perform Task

Authorized workers shall carry out the work for which the energy isolation was completed.

Inspect and Restore

Prior to restoring the energy to equipment, the responsible individual shall:

- ✓ Visually inspect the area in and around the equipment to ensure that all tools and debris have been removed and guards and other safety devices are in place;
- ✓ Notify all affected individuals that power is to be restored;
- ✓ Verify that all individuals are clear of the equipment;
- ✓ Have all lockout devices and tags removed from the energy sources;
- ✓ Restore all isolating devices to the "On" position or the normal operational position.
- ✓ Verify the equipment is operating properly, notify the supervisor and the equipment operator that the task has been completed and control of the equipment has returned to operation;

- ✓ Ensure that the normal operation of the equipment may begin;
- ✓ Never remove another individual's personal locks or tags;
- ✓ Complete the documentation of the permit/FLRA.

Maintenance or Testing Live Equipment

Performing maintenance or testing of live equipment shall not be performed unless a Job Hazard Analysis has been developed and approved by the Divisional Vice President and the Corporate Health and Safety Manager to ensure the health and safety of all workers. If the task is or will be performed on a regular basis, a Standard Operating Procedure must be developed and approved by the Divisional Vice President and the Corporate Health and Safety Manager. All workers must review the approved procedure each time prior to performing any maintenance or testing of live equipment. All tasks on live equipment will be considered critical tasks. An acceptance or approval to deviate from the local regulatory authority (OHS/OSHA/MSHA) may be required.

Contractor Coordination

When external individuals, such as contractors and sub-contractors, are on-site and engaged in tasks on equipment that require compliance with this code of practice, the site supervisor and the contractor shall coordinate each other's respective energy isolation sequence procedures. It is the responsibility of the site supervisor to ensure that the contractor's employees understand and comply with the requirements of this code of practice.

Removal of Locks and Tags

A special protocol shall be established when an individual fails to remove their lock(s) and tag(s). If the individual is not available to remove the lock and tags, the individual's supervisor will attempt to contact the individual and have him/her return to site and remove the lock(s) and tag(s). If the individual cannot be reached, the supervisor together with a competent person shall inspect the work area to ensure the equipment is clear and the task is complete.

If the work is completed, the supervisor shall follow the steps outlined in Inspect and Restore (above), then the supervisor, with the authorization of the most senior individual at the site, may remove (cut and destroy) the lock and tag from the energy isolation device. The supervisor shall cycle the equipment to assure its safe

operation. The individual will be notified of this action, prior to the start of his next work shift.

Personal Lock and Tag Specifications

Lockout and tag out devices shall be singularly identified and not used for any other purpose. They shall meet the following requirements:

- Durable – Lockout and tag out devices shall be capable of withstanding the environment in which they are exposed;
 - Standardized – Lockout and tag out devices shall be standardized within the site by either color, shape, or size;
 - Substantial – Lockout devices shall be substantial enough to prevent removal without the use of excessive force;
 - Unique – Lockout devices shall be uniquely keyed and not have a duplicate or second-party master override key.
-
- Identifiable – A tag must be attached to individuals lock indicating the following information:
 - *Danger Do not operate*
 - *Reason for isolation*
 - *Name of person who placed the lock*
 - *Date and time the lock was put in place*



Figure 2 Example Lock Box (Group)



Figure 4 Example Locking Device

