



# **Safe Work Practices Manual**

## **Business Unit Chapters**



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## **BACKGROUND INFORMATION**

The Safe Work Practice Manual consists of seven main chapters:

1. Safe Work Practices for General Field Work
2. Safe Work Practices for Office/Shop/Yard Work
3. Safe Work Practices for Powered Mobile Equipment
- 4. Safe Work Practices for Inventory**
- 5. Safe Work Practices for Ecology**
- 6. Safe Work Practices for Silviculture**
- 7. Safe Work Practices for Reclamation**

Once you have reviewed the first three chapters as a group review the chapter specific for the Business Unit you will be working in with your Supervisor prior to the commencement of work.

## CHAPTER FOUR: INVENTORY

Systematically collecting forest information for assessment and analysis is an important job that *Woodlands* has been involved in for many years. The tasks of collecting and performing Inventory field work can be straining on the muscles, monotonous and difficult in cold temperatures. However, the job can be very rewarding because workers quickly learn Albertan forest ecosystems in great detail.

A list of Inventory based job tasks within Woodlands North operations include:

- Collecting tree data with measurement tools
- Shaking trees
- Painting trees
- Wiring and tagging
- Pounding posts
- Soil sampling
- Vegetation identification
- Carrying excessive gear
- Cutting down trees for cookie age sampling

Herein details the task hazards, methods of hazard control and Safe Work Practices identified for the above mentioned job tasks.

### 1. TREE MENSURATION

*Concerns: Cuts, puncture wounds*

*Strain, fatigue, musculoskeletal injuries when using necessary equipment*

*Falling debris*

Hazard Priority Rating: LOW to MEDIUM

Hazard Control: Administrative

- Training and mentoring programs
- Safe work practices
- Inspection and Maintenance Policy- See Health and Safety Manual Section 2.8
- Company PPE Policy and Procedures- See Health and Safety Manual Section 3
- Lock Out Tag Out

### Personal Protective Equipment (PPE)

- Hard hats
- Cruise vest
- Steel toed boots
- Gloves
- Safety glasses
- Personal First Aid Kit

#### 1.1. SAFE WORK PRACTICES FOR MEASURING TREES

To avoid injury while measuring trees (including collecting tree data, recording data, shaking trees), employees and sub-contractors will:

- Obtain proper training through the Supervisor or Senior Crew member and utilize the knowledge gained.
- Communicate with other crew members frequently.
- Take turns with your partner when measuring to avoid repetitive neck, eye and back strain using equipment such as the height pole, stiff tape & compass as well as hand cramping from data recording.
- Recommended to wear safety glasses when shaking trees or using height pole to prevent needles and debris from falling in eyes.
- Recommended to wear gloves to prevent scrapes and cuts from bark, needles, thorns, equipment etc.
- Tell your Supervisor when equipment needs servicing. Lock Out Tag Out
- Only use batteries in good condition for measuring equipment and GPS. Throw all dead, leaking and worn out batteries in the labeled box provided in the basement of the office.
- It is a good idea to wear heavy pants, high-ankle boots and long sleeve shirts to avoid skin irritations by plants such as stinging nettle and Devil's Club.

#### 2. PLOT MAINTENANCE

*Concerns: Cuts, puncture wounds*

*Strain, fatigue, musculoskeletal injuries when using necessary equipment*

*Exposure to paint chemicals*

Hazard Priority Rating: LOW to MEDIUM

Hazard Control: Administrative

- Training and mentoring programs
- Safe work practices
- Inspection and Maintenance Policy- See Health and Safety Manual Section 2.8
- Company PPE Policy and Procedures- See Health and Safety Manual Section 3
- Lock Out Tag Out

#### Personal Protective Equipment (PPE)

- Hard hats
- Cruise vest
- Steel toed boots
- Gloves
- Safety glasses
- Personal First Aid Kit

### **2.1. SAFE WORK PRACTICES FOR PLOT MAINTENANCE**

To avoid injury during plot maintenance (including painting trees and posts, wiring and tagging trees, pounding posts and carrying heavy gear), employees and sub-contractors will:

- Obtain proper training through the Supervisor or Senior Crew member and utilize the knowledge gained.
- Always use caution working with or transporting equipment such as EMT pipe, hammer and nails, axe, paint etc.
- Recommend to wear safety glasses to avoid branches in the eyes and face when walking through the forest with lots of equipment to get to the study site. Break branches off that pose a hazard if repeated visits to the site are necessary.
- Know the direction of wind before marking trees with paint. Recommend wearing safety glasses to avoid getting spray in eyes
- Communicate with other crew members frequently.
- Take breaks to reduce fatigue or muscle strain.
- Recommended to wear gloves to prevent scrapes and cuts from bark, needles, thorns, wire, loggers tape, measuring tape etc.
- Avoid the line of fire of hammer or other tools.
- Tell your Supervisor when equipment needs servicing. Lock Out Tag Out.

### 3. ECOSITE SAMPLING

*Concerns: Soil in eyes*

*Strain, fatigue*

*Exposure to poisonous plants, hornets nests, ant hills etc*

Hazard Priority Rating: LOW to MEDIUM

Hazard Control: Administrative

- Training and mentoring programs
- Safe work practices
- Company PPE Policy and Procedures- See Health and Safety Manual Section 3

Personal Protective Equipment (PPE)

- Gloves
- Safety glasses
- Personal First Aid Kit

#### 3.1. SAFE WORK PRACTICES FOR ECOSITE SAMPLING

To avoid injury while ecosite sampling (including soil sampling, and vegetation identification), employees and sub-contractors will:

- Obtain proper training through the Supervisor or Senior Crew member and utilize the knowledge gained.
- Take breaks to reduce fatigue or muscle strain from looking down at a plot all day.
- Do not touch poisonous plants, if unsure of what it is identify before touching and use gloves.
- Recommend wear eyewear when digging up soil.
- Avoid disturbing insect nests/ hills. Flag them if you will be returning to the site and to warn others.
- If sitting, be in a comfortable & safe position.



## CHAPTER FIVE: ECOLOGY

Collecting data that leads to an understanding of the interactions among organisms and their environment has been an important job that *Woodlands* has undertaken for many years. More recently we have added predictive ecosystem and ecosite modelling, analysis, study design and project management to our areas of expertise.

An inventory of ecology-based job tasks within Woodlands North operations include:

- Amphibian pitfall trapping
- Amphibian call surveys
- Egg mass searches
- Songbird point counts / owl surveys
- Nest searches
- Stream classification
- Stream crossing classification
- Small mammal trapping
- Winter tracking
- Wildlife fencing
- Electrofishing
- Supervising stem bending
- Vegetation assessments
- Wildlife camera work
- Pellet and browse surveys
- Working in the Cold Lake Air Weapons Range (CLAWR)

Herein details the task hazards, methods of hazard control and safe work practices identified for the above mentioned job tasks.

### 1. AMPHIBIAN SURVEYS

*Concerns: Injuries from hand tools (shovel, axe, knife)*

*Drowning*

Hazard Priority Rating: LOW-MEDIUM

Hazard Control: Administrative

- Training and mentoring programs
- Safe work practices

- Company PPE Policy and Procedures- See Health and Safety Manual Section 3

#### Personal Protective Equipment (PPE)

- Hard hats
- Cruise vest
- Steel toed boots
- Rubber boots or waders
- Gloves
- Safety glasses
- Personal First Aid Kit

### **1.1. SAFE WORK PRACTICES FOR AMPHIBIAN SURVEYS**

To avoid injury while conducting amphibian surveys (including pitfall trapping, call surveys, egg mass searches) employees and sub-contractors will:

- Obtain proper training through the Supervisor or Senior Crew member and utilize the knowledge gained.
- Take breaks to reduce fatigue when conducting late night call surveys.
- Ensure you are carrying animal deterrent when conducting night surveys as animal activity is higher at these times.
- Recommend to wear safety glasses to avoid branches in the eyes and face when walking through the forest at night.
- Recommend wearing rubber gloves when handling amphibians.
- Avoid the line of fire of saws, hammers or other tools when constructing pitfall traps.
- Always use caution working with or transporting equipment such as stakes, sledge hammer, fencing material.
- Wildlife may be attracted to animals unintentionally killed in pitfalls so ensure to have your bear spray and other animal deterrents readily available.
- Always wear appropriate footwear when conducting egg mass searches, such as rubber boots or quick release waders.
- If using waders, they should fit properly to avoid tripping and awkward movements near the water's edge. Review in detail Section 12 of General Field Work Chapter Working Near Watercourses.

## 2. SONGBIRD SURVEYS

*Concerns: Fatigue working before sunrise*  
*Getting lost and turned around*

Hazard Priority Rating: MEDIUM

Hazard Control: Administrative

- Training and mentoring programs
- Safe work practices
- Company PPE Policy and Procedures- See Health and Safety Manual Section 3

Personal Protective Equipment (PPE)

- High visibility (hard hats, cruise vest)
- Compass, communication devices
- Personal First Aid Kit

### 2.1. SAFE WORK PRACTICES FOR SONGBIRD SURVEYS

To avoid injury while working on songbird studies (including songbird point counts, nest searches, owl surveys) employees and sub-contractors will:

- Obtain proper training through the Supervisor or Senior Crew member and utilize the knowledge gained.
- Take breaks to reduce fatigue from early morning starts for point counts or late nights with owl surveys.
- Ensure you are carrying animal deterrent when conducting night surveys as animal activity is higher at these times.
- Avoid disturbing insect nests/ hills while doing nest sweeps. Flag them if you will be returning to the site and to warn others.
- Recommend to wear safety glasses to avoid branches in the eyes and face when walking through the forest conducting nest sweeps.

## 3. MAMMAL SURVEYS

*Concerns: Bites and infections from small mammals*  
*Injury from equipment/tools*  
*Strain, muscle fatigue*

*Cold exposure hazards*

*Slips, trips, falls in snowshoes*

Hazard Priority Rating: LOW-MEDIUM

Hazard Control: Administrative

- Training and mentoring programs
- Safe work practices
- Company PPE Policy and Procedures- See Health and Safety Manual Section 3

Personal Protective Equipment (PPE)

- Hard hats
- Cruise vest
- Steel toed boots
- Gloves
- Sunglasses
- Face masks
- Safety glasses
- Personal First Aid Kit

### **3.1. SAFE WORK PRACTICES FOR MAMMAL SURVEYS**

To avoid injury while working on mammal studies (including small mammal trapping, winter tracking, wildlife/fladry fencing, pellet surveys/collections, browse surveys and wildlife camera work) employees and sub-contractors will:

- Obtain proper training through the Supervisor or Senior Crew member and utilize the knowledge gained.
- Recommend to wear safety glasses to avoid branches in the eyes and face when walking through the forest during tracking transects or travel to plots.
- Communicate with other crew members or crews frequently when doing remote work.
- Recommend wearing gloves to prevent scrapes and cuts from animals, traps, needles, other equipment etc.
- Recommend wearing multiple layers of clothing when conducting winter tracking to prevent sweating during exertion in winter conditions.
- Recommend using sunglasses during sunny conditions while doing winter tracking to avoid

eye strain and damage.

- Recommend wearing masks when handling fecal material during pellet surveys.
- Recommend wearing rubber gloves when handling small mammals.
- Avoid the line of fire of saws, hammers or other tools when setting up plots or clearing brush.
- Always use caution working with or transporting equipment such as posts, sledge hammers, fencing material.

#### **4. WATERCOURSE SURVEYS**

*Concerns: Drowning*

*Eye strain, muscle strain*

*Electric shock or other injuries from improper use of equipment*

*Slips, trips, falls*

*Injury/death from passing traffic*

*Cuts, bites, microbial infections from fish, leeches etc*

Hazard Priority Rating: LOW-MEDIUM

Hazard Control: Administrative

- Training and mentoring programs
- Safe work practices
- Company PPE Policy and Procedures- See Health and Safety Manual Section 3

Personal Protective Equipment (PPE)

- Polarized sunglasses
- Neoprene chest waders and chest strap/wading belt, wading boots
- Electrical Lineman gloves
- Wide brimmed hat
- Long handled stiff net- stabilizer as well as functional for task

##### **4.1. SAFE WORK PRACTICES FOR WATERCOURSE SURVEYS AND CROSSING ASSESSMENTS**

To avoid injury while conducting watercourse works including stream classifications, crossing

assessments, electrofishing, making fish fences, pumping water, etc. employees and sub-contractors will:

- Review Section 12 Working Near Watercourses in the General Field Work Chapter for applicable Safe Work Practices.
- Heavy lifting on uneven wet ground is required to set up fish fences. Use proper lifting technique and the Three Point Contact Rule (Section 9 General Field Work Chapter).
- Keep your body out of the line of fire when setting up the fish fences and communicate well with your crew so that everyone is aware of your intent.
- Always wear good footwear and quick release waders.
- The waders should fit properly to avoid tripping and awkward movements near the water's edge.
- Wear gloves when handling fish to reduce cuts from sharp fins, bites, or microbial infections from skin contacting their mucus.
- NEVER come into direct physical contact with water when electrofishing; keep a strong 3<sup>rd</sup> point of contact for stability when walking in the water. Beware of the cathode's location in and out of the water and avoid stepping on it as it may impair the shocker's stability.
- Wildlife is often attracted to water bodies so ensure to have your bear spray and other animal deterrents readily available.
- Work in crews whenever possible and keep in radio contact with your partner(s) at all times.

## 5. STEM BENDING SUPERVISION

*Concerns: Injury from winch or other equipment*

*Injury from falling tree*

Hazard Priority Rating: MEDIUM

Hazard Control: Administrative

- Training and mentoring programs
- Safe work practices
- Company PPE Policy and Procedures- See Health and Safety Manual Section 3

Engineering

- Cables over-rated for work load

Personal Protective Equipment (PPE)

- Hard hat

- Gloves
- Eye protection
- Steel toe boots
- High visibility vest

### **5.1. SAFE WORK PRACTICES FOR STEM BENDING SUPERVISION**

- Avoid the line of fire by ensuring you are behind equipment
- Assign a designated spotter
- Assign a designated communications person and obey all instructions given by him/her

## **6. VEGETATION ASSESSMENTS**

- See Section 3 within the Inventory Chapter for task hazard assessment, hazard controls and Safe Work Practices for this task.

## **7. WORKING IN THE COLD LAKE AIR WEAPONS RANGE (CLAWR)**

*Concerns: Injury/death encountering military equipment*

*H2S, forest fire, spills, MVA*

Hazard Priority Rating: LOW to MEDIUM

Hazard Control: Administrative

- Communications and Safety Work Plan (CSWP)
- CSWP submission procedure to PM and LiDea II Safety Work Group with a safety map.
- CLAWR Emergency Response Contact List
- CLAWR check in check out system
- Internal check in check out systems
- Safe Work Permit Procedure
- CLAWR communication procedures
- Monitoring agents
- Safe work zones and controlled timing restrictions
- Active Bomb Target Plans (DND)

Engineering

- Cell boosters
- Suitcase radio

Personal Protective Equipment (PPE)

- WN emergency equipment (spill, fire, injury)

**7.1. SAFE WORK PRACTICES FOR WORKING IN THE CLAWR**

- Attend and ensure all required safety training is obtained before working in the CLAWR (First Aid, CPR, H2S, WHMIS, TDG, Ground Disturbance, Powerline safety etc).
- 2-way communications are always required for all works in the CLAWR. Always ensure your SPOT, InREACH, GPS, cell phone, handheld radio and truck radio are fully charged and in good working order.
- The Client Project Manager shall be the first person to contact in the case of emergency followed by ECC. Follow all site communication procedures carefully. Follow all Woodlands emergency response procedures for general field work hazards.
- Do not start any works in site without first acquiring a Safe Work Permit.
- Strict adherence to site policies, procedures and safe work practices is expected.



## CHAPTER SIX: SILVICULTURE

Aiding Clients in the practice of controlling and monitoring the establishment, growth, composition, health and quality of forest growth is a regular task of *Woodlands* employees. We are also involved in designing treatments for increased forest productivity and perseverance.

An inventory of silviculture-based job tasks within Woodlands North operations include:

- Tree plant supervision and pay plotting
- Measuring trees in regeneration, performance surveys and seedling stock trials
- Aerial herbicide supervision
- Pre-harvest assessments
- Pile burning
- Planting trees
- Thinning competitive trees in plots

Herein details the task hazards, methods of hazard control and safe work practices identified for the above mentioned job tasks.

### 1.TREE PLANT SUPERVISION, PAY PLOTTING AND PLANTING TREES

*Concerns: Repetitive strain injuries*

*Dirt in eyes*

*Rashes, slivers, bruises, injury*

*Slips, trips, falls*

*Harassment and personal conflict*

Hazard Priority Rating: LOW-MEDIUM

Hazard Control: Administrative

- Training and mentoring programs
- Safe work practices
- Company PPE Policy and Procedures- See Health and Safety Manual Section 3

Personal Protective Equipment (PPE)

- Protective gloves and eyewear
- Personal First Aid Kit

## Engineering

- Adjustable straps on planting bags
- Grinder for shaving down shovel head

### 1.1. TREE PLANT WORK EDUCATIONAL PROGRAM

#### 1.1.1 MUSCULOSKELETAL INJURIES

Musculoskeletal injuries (MSIs) are one of the most troublesome injuries that persist in otherwise safe industries with excellent safety programs. A musculoskeletal injury, as defined by WCB, is an injury or disorder of the muscles, tendons, ligaments, joints, nerves, blood vessels or related soft tissue including sprains and inflammations that may be caused or aggravated by work. It includes overuse injuries such as tendonitis “Tennis Elbow” as well as overexertion injuries such as muscle strain. MSIs are common amongst trees planters because their work is hard and repetitive in nature. MSIs can become permanent, long term injuries.

#### Signs and symptoms of tendonitis to watch out for:

- Aching
- Creaking
- Numbness
- Redness
- Tenderness at certain spots

#### Treatment:

- Rest- use the sore or inflamed body part as little as possible
- Ice-apply 10 min on/10min off starting right after work
- Immobilize-use a brace or tape to prevent as much loading on that joint as possible
- Light duties- keep active but avoid any movement that reproduces that which caused the pain and inflammation
- Deep friction massage can also help
- Seek medical assessment if condition worsens and for proper strengthening exercises

### 1.2. SAFE WORK PRACTICES FOR TREE PLANT WORK

Supervising, pay plotting and planting of trees is almost always conducted on rough slashy work sites, and tackling the access roads in “gumbo” muddy conditions proves challenging for even those workers with years of experience.

- Tripping/falling hazards are plentiful for all silviculture works. Review Section 11 of the General Field Work Chapter for prevention of slips, trips, falls.
- It is strongly recommended to condition the body prior to tree planting tasks.
- Practice the planting technique taught to you by your Supervisor or crew mentor and pay particular attention to the ergonomics of your back, wrist, shoulders and knees.
- Always wear steel toed boots with good ankle support.

- Ensure adequate nourishment and hydration at all times in the block.
- Choose a planting shovel that is appropriate for your tasks and size. For example if Supervising or pay plotting a standard shovel will work. However if you are tree planting you may want to grind down the shovel head to reduce weight and strain on your wrists and shoulders.
- Recognize early signs of an MSI and report immediately.
- Recommend wear long sleeves and pants to prevent injury from slash and seedlings rubbing on the underarms.
- Have safety glasses on your person and use as needed.
- Ensure all communications are professional in nature. Never make personal attacks or negative remarks when critiquing planting quality. Remove sunglasses when talking to tree planters and maintain a demeanor of approachable authority.
- Transporting trees on an ATV is hazardous as the extra weight on the quad can cause instability and distraction. Ensure you have attended the ATV training and are certified.

## **2. SEEDLING MEASUREMENTS AND PRE-HARVEST ASSESSMENTS**

- See Section 1 & 3 within the Inventory Chapter for task hazard assessment, hazard controls and Safe Work Practices for this task.

## **3. AERIAL SPRAY HERBICIDE SUPERVISION**

*Concerns: Skin irritation*

*Eye irritation*

*Poison exposure*

*Fatigue from working split shifts*

Hazard Priority Rating: MEDIUM

Hazard Control: Administrative

- Training and mentoring programs (including MSDS/WHMIS)
- Safe work practices
- Company PPE Policy and Procedures- See Health and Safety Manual Section 3

Personal Protective Equipment (PPE)

- Protective gloves and eyewear
- High visibility wear
- Personal First Aid Kit

### 3.1. SAFE WORK PRACTICES FOR AERIAL SPRAY HERBICIDE SUPERVISION

- Understand and abide by Client standards and procedures for the task.
- Always make sure you have radio contact with the pilot. Have a fully charged radio and spare battery.
- Carefully follow the instructions of the pilot.
- Find a spot just outside the spray boundary, up wind if possible. Have your safety glasses and gloves on hand if wind suddenly shifts.
- Make sure you know where the spray boundaries are at all times.
- Be aware that the ground can be slippery post spray. One can easily get stuck or fall in blocks with exposed soil that has been recently rained on as well.
- Always have your high visibility wear on to the pilot always knows where you are.
- Be aware of stinging nettle, thistle and other harmful plants that may grow well in open ground.
- Review the MSDS for Vision Max (or other herbicide used that day) before the job and have it on hand along with all the proper first aid, PPE, containment, clean up and disposal equipment.
- Review Section 7 of the General Field Work Chapter regarding fatigue management.
- Keep careful watch of the weather forecast and err on the side of caution if conditions are marginal for aerial spray.

## 4. PILE BURNING

*Concerns: Skin and eye irritation*

*Poison exposure*

*Burns and smoke inhalation*

Hazard Priority Rating: MEDIUM

Hazard Control: Administrative

- Training and mentoring programs (including MSDS/WHMIS)
- Safe work practices
- Company PPE Policy and Procedures- See Health and Safety Manual Section 3

Personal Protective Equipment (PPE)

- Protective gloves and eyewear
- High visibility wear
- Personal First Aid Kits

## **4.1. PILE BURNING EDUCATIONAL PROGRAM**

### **4.1.1 FLASH 21A & FLASH 21B**

Flash 21 is a fuel gelling agent. This product is a two-part liquid gelling agent solution that provides a fast, reliable gelling time for ground based torch mixing applications. Always have the MSDS information and equipment on hand. Follow mixing instructions carefully and always use caution when working with the chemical. Refer to Section 6 of the General Field Work Chapter for Safe Work Practices for working with harmful substances.

## **4.2. SAFE WORK PRACTICES FOR PILE BURNING**

- Always ensure that any fires lit will not burn out of control.
- Do not burn piles near powerlines. Smoke and hot gases from a fire can create a conductive path for electricity. Electricity can arc from the wire, through the smoke and to the ground, endangering people and objects near the arc.
- Exercise caution with burning supplies and be prepared for potential spills or personal exposure.
- Review and have quick access to MSDS information and supplies for burning chemicals.
- Be aware of weather and wind conditions and plan accordingly. Avoid smoke inhalation by working upwind of burning piles if possible.
- Wear gloves, safety glasses and other protective clothing
- If a saw is being used then chaps must be worn as well as hearing protection.
- Exposure to fuel and smoke fumes as well as other chemicals can be minimized by changing clothes at the end of the day and protecting the truck from spills or fumes. Additional vehicle seat protection is recommended.
- Be aware of where your co-worker(s) are and what they are doing. Ensure that your actions will not endanger them.
- Do not light a pile if someone is standing on top of it.
- No smoking on the field work site! Do not smoke within 50 meters of fuel or mixing site (In the back yard of the shop).
- Wear gloves when bagging the gel.
- Keep long hair tied up when lighting the pile.

## **5. THINNING**

*Concerns: Injury from blades or ejected material*

*Muscle pain, strain*

Hazard Priority Rating: MEDIUM

Hazard Control: Administrative

- Training and mentoring programs
- Safe work practices
- Company PPE Policy and Procedures- See Health and Safety Manual Section 3

Personal Protective Equipment (PPE)

- Chaps, hearing protection, face shield
- Gloves, hard hat, steel toe boots, long sleeves
- Personal First Aid Kit

Engineering

- Guards, adjustable handles and straps

**5.1. SAFE WORK PRACTICES FOR THINNING**

- Take regular breaks to avoid strain and injury.
- Stay in communication with your partner and know where they are at all times. Work apart from each other. Ensure ejected material will not endanger other persons or animals when operating.
- Check your unit daily for loose/missing nuts, bolts and screws. Tighten or replace as needed. Do not operate if leaks or other faults are noted. Lock Out Tag Out.
- Ensure all guards are fitted, secure and functional.
- Adjust the handles to a position for comfort and good balance.
- Avoid the hot muffler side of the engine and never raise the blade head above knee height.
- When starting, ensure the blade is clear from the ground.
- Maintain footing and balance at all times. Do not operate on slippery, uneven or unstable surfaces.
- Never operated one-handed.
- For additional information refer to the Office/Shop/Yard Chapter Section 4.

## CHAPTER SEVEN: RECLAMATION

Urban sprawl, soil erosion, resource extraction and industrial development are increasingly making land reclamation professionals in more demand. *Woodlands* has workers involved in many exciting projects that involve converting a piece of disturbed land to its original state (ecological restoration) or more often to an alternative state with a different end use.

A list of Reclamation based job tasks within Woodlands North operations include:

- Inventorying and monitoring wellsite regeneration
- Inspecting and supervising watercourse crossing construction
- Supervising ground disturbance and site preparation
- Building silt fences
- Harvesting and spreading coarse woody debris (CWD)
- Collecting live cuttings
- Planting trees and cuttings
- Spreading peat moss
- Seeding
- Supervising and applying herbicide
- Manually controlling vegetation
- Identifying and measuring vegetation
- Digging soil pits
- Collecting refuse

Herein details the task hazards, methods of hazard control and Safe Work Practices identified for the above mentioned job tasks.

### 1. INVENTORYING AND MONITORING WELLSITE REGENERATION

*Concerns: Slips, trips, falls*

*Remote location, poor communication*

*Exposure to extreme weather, wildlife*

*Proximity to H2S facilities*

Hazard Priority Rating: LOW to MEDIUM

Hazard Control: Administrative

- Training and mentoring programs
- Safe work practices

- Company PPE Policy and Procedures- See Health and Safety Manual Section 3

Personal Protective Equipment (PPE)

- Hard hats
- Cruise vest
- Steel toed boots
- Gloves
- Safety glasses

**1.1. SAFE WORK PRACTICES FOR INVENTORYING AND MONITORING WELLSITE REGENERATION**

- Revisit the General Field Work Chapter Sections 1-11.
- See Sections 1 & 3 of the Inventory Chapter regarding safety assessing vegetation growth and soil sampling as part of a monitoring program or prescriptive plan.

**2. INSPECTING AND SUPERVISING WATERCOURSE CROSSING CONSTRUCTION**

*Concerns: Injury/death from exposure to heavy equipment*

*Drowning*

Hazard Priority Rating: MEDIUM

Hazard Control: Administrative

- Training and mentoring programs
- Company PPE Policy and Procedures- See Health and Safety Manual Section 3
- Scheduling task during good weather days only

Personal Protective Equipment (PPE)

- High visibility hard hats and vest
- CSA-approved steel toed boots
- Leather gloves
- Safety glasses
- Fire-retardant coveralls



- First Aid Kit

## **2.1. SAFE WORK PRACTICES FOR SUPERVISING WATERCOURSE CROSSING CONSTRUCTION**

- See Sections 8 & 12 with the General Field Work Chapter regarding applicable safe work practices working near watercourses and working near heavy equipment.

## **3. SUPERVISING GROUND DISTURBANCE AND SITE PREPARATION**

*Concerns: Injury/death from exposure to heavy equipment*

*Injury/death from exposure to high voltage electricity (buried electrical lines & overhead power lines)*

*Injury/death from exposure to toxic gases*

*Injury/death from combustion of flammable substances*

Hazard Priority Rating: MEDIUM

Hazard Control: Administrative

- Ground Disturbance Certification
- Power line Awareness Training
- Education and mentoring programs
- Company PPE Policy and Procedures- See Health and Safety Manual Section 3
- Daily Task Hazard Assessment Procedure (Tailgate)
- Scheduling task during good weather days only
- Minimum disturbance distances

Personal Protective Equipment (PPE)

- High visibility hard hats and vest
- CSA-approved steel toed boots
- Leather gloves
- Safety glasses
- Fire-retardant coveralls
- First Aid Kit

## Engineering

- Flagging of all underground facilities and overhead power lines
- Hydrovac/hand exposure of underground facilities

### **3.1. SAFE WORK PRACTICES FOR SUPERVISING GROUND DISTURBANCE AND SITE PREPARATION**

- See Section 8 of the General Field Work Chapter for safe practices working near heavy equipment
- Before commencing activities
  - Contact One-Call to request a list of facilities registered for the work site
  - Complete line locates. Do a double sweep at right angles for the work site plus an additional 30 meters around the area to be disturbed
  - If deemed necessary, do an additional sweep with a different line locate company to the same standard
  - Follow minimum disturbance distances as required
- Flag all underground facilities before commencing work. Ensure the markers are clear by flagging every 100 meters and all corners to avoid confusion regarding the location of the buried facility
- Ensure all personnel have the necessary and valid safety certifications and orientations that pertain to their job assignments:
  - Ground Disturbance Level II, Ground Disturbance for Supervisors and Power line Awareness Training are required for all *Woodlands* Supervisors on site
  - All workers (including non-qualified electrical workers) who perform work near high voltage electricity must receive awareness training in-house or by a Third Party. Awareness training shall include safety related work practices that pertain to their respective job assignments, all clearance distances, Lock Out Tag Out, long dimensional conductor object clearances, Arc Flash Protection and conductive materials awareness
- Clearly communicate the following information during the Daily Tailgate Meeting with all workers BEFORE entering the work site:
  - the identified hazards such as proximity to watercourses, slopes and high voltage electricity
  - the hazard controls (applicable Safe Work Practices, Policies, Stop Work Procedures, required PPE, engineering controls etc)
  - emergency response procedures
  - the mustering point
- Once on site reiterate the following before commencement of operations:
  - the depth, size and type of buried facilities if known
  - the color coding system used for flagging buried facilities
  - what materials workers may transport

- Safe Work Practices to prevent accidental contact if applicable, proper equipment usage, and required communications/notifications
- that only qualified electrical workers may approach and handle any high voltage electrical equipment that may be on site
- Monitor for the presence of toxic and flammable gases and vapors while exposing a facility; the proximity with heavy equipment may result in explosions or severe injury and death
- Monitor if damage occurs to the flagged areas during operations- the Supervisor is responsible for replacing them
- Ensure everyone is wearing proper PPE

### **3.2. SAFE WORK PRACTICES FOR WORKING NEAR HIGH VOLTAGE**

- The two main sources of high voltage hazard that workers may be exposed to are buried electrical lines and overhead power lines. Section 3.1 details SWP for the buried facilities
- Workers must remain at least 20 meters back from downed power lines
- Ensure no machine enters within 7 meters of overhead power lines while conducting work
- If machine work is required within the 7 meter safe limit of approach immediately notify the utility owner. DO NOT ENTER. Request to have a utility owner representative (qualified electrical worker) on site. The qualified electrical worker must de-energize / lock out tag out the high voltage lines prior to your crew's entrance. If high voltage lines cannot be de-energized or locked out workers are strictly prohibited from working within the safe limit of approach distance unless proper tagging/signage is in place and insulated barriers are available to protect against accidental contact. Arc Flash PPE must be worn
- Signage must be present where equipment is required to pass under power lines
- A spotter must be present when equipment is passing under power lines

## **4. SILT FENCING**

*Concerns: Injuries*

*Muscle strain*

Hazard Priority Rating: LOW to MEDIUM

Hazard Control: Administrative

- Training and mentoring programs
- Safe work practices
- Company PPE Policy and Procedures- See Health and Safety Manual Section 3

Personal Protective Equipment (PPE)

- High visibility hard hats and vest
- CSA-approved steel toed boots
- Leather gloves
- Safety glasses or face shield when pounding stakes
- Coveralls
- Personal First Aid Kit

#### **4.1. SAFE WORK PRACTICES FOR SILT FENCING**

- Use slow purposeful movements and mind on task when handling the shovel or pounding stakes, especially when roots limit maneuverability.
- Wear required PPE to avoid minor injuries (i.e. splinters, pinches).
- See Section 10 of the General Field Work Chapter regarding safely carrying heavy field equipment.

### **5. HARVESTING AND SPREADING CWD**

*Concerns: Injuries*

*Muscle strain*

*Slips, trips, falls*

Hazard Priority Rating: LOW to MEDIUM

Hazard Control: Administrative

- Training and mentoring programs
- Safe work practices
- Company PPE Policy and Procedures- See Health and Safety Manual Section 3

Personal Protective Equipment (PPE)

- High visibility hard hats and vest
- CSA-approved steel toed boots
- Leather gloves
- Safety glasses
- Coveralls

- Personal First Aid Kit

### **5.1. SAFE WORK PRACTICES FOR HARVESTING AND SPREADING CWD**

- Always use required PPE.
- Stretch, rest and keep hydrated as necessary as repeated bending, carrying heavy and awkward loads (logs) is taxing on the body.
- Use slow purposeful movements and have mind on task when handling sharp objects to saw/split/cut logs.
- Watch for decomposing bark because the fine particles (dust) are light enough to float and get in your eyes and throat and cause irritation.
- See Section 11 of the General Field Work Chapter regarding safely preventing slips trips falls.

## **6. SPREADING PEAT MOSS**

*Concerns: Injuries*

*Muscle strain*

*Eye and throat irritation*

Hazard Priority Rating: LOW to MEDIUM

Hazard Control: Administrative

- Training and mentoring programs
- Safe work practices
- Company PPE Policy and Procedures- See Health and Safety Manual Section 3

Personal Protective Equipment (PPE)

- High visibility hard hats and vest
- CSA-approved steel toed boots
- Leather gloves
- Safety glasses
- Coveralls
- Masks available
- Mobile eye wash station available
- Personal First Aid Kit

## **6.1. SAFE WORK PRACTICES FOR SPREADING PEAT MOSS**

- Stretch, rest and keep hydrated as necessary as repeated bending, carrying heavy and awkward loads (peat moss pouches) are taxing on the body.
- Use slow purposeful movements and have mind on task when handling sharp objects to cut open the peat moss pouches.
- Wear required PPE.
- Handle the peat moss gently since the fine particles (dust) are light enough to float and get in your eyes and throat causing irritation.
- Review Section 12 Working Near Watercourses in the General Field Work Chapter since peat moss applications are usually conducted in wet, unstable environments such as bogs.

## **7. REVEGETATION**

*Concerns: Injuries from sharp equipment and surrounding vegetation*

*Muscle strain*

*Eye and throat irritation*

Hazard Priority Rating: MEDIUM

Hazard Control: Administrative

- Training and mentoring programs
- Safe work practices
- Company PPE Policy and Procedures- See Health and Safety Manual Section 3

Personal Protective Equipment (PPE)

- High visibility hard hats and vest
- CSA-approved steel toed boots
- Leather gloves
- Safety glasses
- Coveralls
- Masks and mobile eye wash station available
- Personal First Aid Kit

## 7.1. SAFE WORK PRACTICES FOR REVEGETATION

Site revegetation involves mainly three techniques: live cutting collection and planting, seeding, and planting seedlings. In order to avoid injury workers and sub-contractors should conduct these tasks in the following manner:

- Wear gloves to protect yourself against plant defensive mechanism when handling stems.
- Stretch as necessary and keep hydrated.
- Avoid carrying loads heavier than physically possible for the task as it also affects your stability leading to slips/trips/falls.
- Use slow purposeful movements when handling sharp equipment (i.e. saws and pruning shears).
- See Section 1 under the Silviculture Chapter regarding safely planting trees.
- Dust can rise when loading seed in to the spreader; masks are available.

## 8. VEGETATION CONTROL

*Concerns: Chemical poisoning*

*Eye, skin and throat irritation*

*Back strain*

Hazard Priority Rating: MEDIUM

Hazard Control: Administrative

- Training and mentoring programs including MSDS and WHMIS
- Safe work practices
- Company PPE Policy and Procedures- See Health and Safety Manual Section 3

Personal Protective Equipment (PPE)

- High visibility hard hats and vest
- Chemical-resistant CSA-approved work boots
- Protective gloves
- Safety glasses
- Coveralls
- Respirator (chemical specific)
- Mobile eye wash station available

## 8.1. SAFE WORK PRACTICES FOR VEGETATION CONTROL

Vegetation control using chemicals is the most hazardous task to be completed in reclamation. It involves supervision of herbicide applications, conducting manual applications of vegetation control treatments (chemical or cultural) as well as manual pulling. In order to avoid injury workers and sub-contractors should conduct these tasks in the following manner:

- Wear gloves to protect yourself against plant defensive mechanism when hand pulling.
- Stretch as necessary and keep hydrated.
- Stand upwind from applications to stay away from vapors and drift.
- Wash hands thoroughly before eating or drinking.
- Store food away from application areas.
- Wear and maintain all chemical specific PPE.
- Ensure applications are thorough but conducted in a safe manner for applicators, bystanders (environment, wildlife or yourself) and any facilities remaining on site.
- Flag buffers around facilities and specify buffer width from surrounding forests.
- Know the chemicals being used and be ready to respond to emergencies at all times (i.e. spills, first aid, containment, disposal etc). Always review the MSDS in detail prior to work commencement.
- Never begin applications without proper training by a Certified Pesticide Applicator (CPA).
- Use appropriate spraying methods and herbicides to target undesirable species only.
- Avoid spraying around migratory birds (when present on site) during their breeding season (April-July) or within sensitive areas/protected reserves/parks/Caribou Management Zones.
- Plan applications to avoid walking through applied areas or spray drift, mind wind directions.
- Wash or dispose of used coveralls between applications; store in a separate plastic bag during transport.
- Carry spill kits and shovels for potential emergencies at loading/unloading and mixing areas.

## 9. COLLECTING REFUSE

*Concerns: Minor injuries, back strain, eye and throat irritation*

*Contaminant exposure*

*Damage to planted vegetation*

Hazard Priority Rating: LOW to MEDIUM

Hazard Control: Administrative

- Training and mentoring programs including MSDS and WHMIS
- Safe work practices



- Company PPE Policy and Procedures- See Health and Safety Manual Section 3

Personal Protective Equipment (PPE)

- Hard Hat
- Safety Glasses
- Protective gloves
- Coveralls
- CSA-approved Work Boots
- Personal First Aid Kit
- Mobile eye wash station available

**9.1. SAFE WORK PRACTICES FOR REFUSE COLLECTION**

- Stretch and rest as necessary
- Keep hydrated and avoid carrying loads heavier than physically possible for the task as it also affects your stability leading to slips/trips/falls.
- Slow purposeful movements and mind on task when handling sharp refuse; wear PPE.
- Wash your hands thoroughly before eating or drinking to reduce poisoning from potentially contaminated refuse.
- Watch your step to avoid trampling and/or killing young seedlings (planted or natural)