

NATIONAL OCCUPATIONAL STANDARD



# SURFACE MINER



MINING INDUSTRY  
HUMAN RESOURCES COUNCIL

## INTRODUCTION

National Occupational Standards (NOS) establish clear, objective benchmarks of the skills and knowledge required for workers to perform in a particular occupation. Each NOS reflects a complete list of competencies required to perform a specific job.

The Mining Industry Human Resources Council (MiHR) developed and maintains a suite of seven NOS for the Canadian mining industry. The development and maintenance of each NOS is led by a National Occupational Standard Development Committee (NOSDC) made up of

subject-matter experts from various groups across Canada, including industry, labour and education. NOS development committees undertake a regular review (every three to five years) of the NOS to ensure they remain current and relevant to industry.

For more information on the NOS or our Canadian Mining Skills Development Strategy, please visit [mihhr.ca/standards-training-recognition](http://mihhr.ca/standards-training-recognition) or email [standards@mihhr.ca](mailto:standards@mihhr.ca).

## UNDERSTANDING THE NOS

Each National Occupational Standard reflects a complete list of competencies required to perform a specific job. All areas of competence and their tasks for the entire suite of seven NOS have been pulled together in MiHR's Master Competency List. The Master Competency List allows you to understand those competencies and tasks that are common across multiple occupations versus the specialties that set them apart.

Competency areas that are common across multiple occupations within the mining industry are referred to as common competencies. They are the foundational competencies and skills required to work in the mining industry, and include tasks such as working safely, and knowledge of workplace policies and legislation.

Each NOS builds on the common competencies by including additional competencies that are unique to each occupation. Both types of

competencies are referenced in the NOS document with multiple tasks and sub-tasks to provide a deeper context and understanding of each area of competency. Each task is further defined by its general frequency. References and examples of abilities and knowledge are included to ensure adequate interpretation of each sub-task.

MiHR's Master Competency List reflects all areas of competency for MiHR's suite of NOS and each area of competency and its related tasks keep the same identification number regardless of the NOS in which they are included.

Should an area of competency or task not be included in an NOS, the related details for that area of competency or task will not be present in the NOS. In its place, there will be an indication that the task is not applicable to this NOS.

## ACKNOWLEDGEMENTS

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## Area of Competency 1: Policies and Legislation



## TASK 1.1

# COMPLY WITH COMPANY POLICIES AND PROCEDURES

### ✓ SUB-TASK

1. Understand, sign off and follow company policies and procedures.

### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Includes Standard Operating Procedures (SOP)
- Includes policies on the use of personal electronic devices, wearing jewellery, contact lenses, long hair, etc.
- Includes procedures on operation of equipment, use and handling of chemicals, care and maintenance of sumps and ventilation.
- Understand and apply human resource policies, procedures and collective bargaining agreements.
- Comply with drug and alcohol policy.
- Comply with updates and revisions to policies and procedures.



## TASK 1.2

# UNDERSTAND AND COMPLY WITH APPLICABLE WORKPLACE LEGISLATION AND REGULATIONS

### ✓ SUB-TASK

1. Understand and follow work processes mandated by legislation and regulations.

### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Includes Mine Health and Safety Act and Regulations, Workers' Compensation Regulations, Labour Standards, Hoisting Regulations, Environmental legislation, Explosive Regulations.
- Comply with updates and revisions to legislation and regulations.

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## Area of Competency 2: Work Safely





## TASK 2.1

# SELECT, USE AND MAINTAIN PERSONAL PROTECTIVE EQUIPMENT (PPE)

### ✓ SUB-TASKS

1. Recognize situations that require use of PPE.
2. Select, inspect, use, maintain and store appropriate PPE for:
  - Head protection
  - Eye protection
  - Foot protection
  - Hand protection
  - Hearing protection
  - Respiratory protection
  - High-visibility clothing and apparel
  - Specific conditions (fall protection, welding, radiation, handling chemicals, energized work, roasting)
3. Wear clothing appropriate for work conditions and tasks.
4. Follow site, provincial and territorial standards.
  - Practice personal hygiene.

### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Select appropriate PPE.
  - Wear PPE approved by recognized authority (Canadian Standards Association (CSA), American National Standards Institute (ANSI), Underwriters Laboratories (UL)).
  - Identify limitations of PPE.
  - Workers may not be aware of approved PPE and/or the PPE may be assigned by the company.
  - Contractors can be required to select their own PPE.
  - Ensure PPE is appropriate for the assigned work task.
- Inspect PPE.
  - Inspect PPE for wear, damage and defects before using.
  - Replace worn, damaged or defective PPE.
  - Report defects to appropriate personnel.
- Use PPE.
  - Ensure PPE fits correctly and is adjusted properly.
  - Follow manufacturer's instructions and specifications for proper use and maintenance of PPE.
  - Maintain and store PPE.
- Wear clothing appropriate for work conditions and tasks.
  - Do not wear loose or torn clothing.
  - Ensure all clothing adequately covers body to protect against hazards, contaminants, work and weather elements.
  - Dispose of contaminated clothing in compliance with company policies and legislation.
  - Use appropriate eye protection in place of contact lenses.
  - Wear high-visibility PPE as required.
- Practice personal hygiene.
  - Keep work clothes separate from street clothes if required.
  - Change and clean work clothes regularly.



## TASK 2.2

# PRACTICE AND MAINTAIN GOOD HOUSEKEEPING

### ✓ SUB-TASKS

1. Maintain clean work area.
2. Use appropriate equipment for task.
3. Take corrective action as required.
4. Appropriately dispose of waste materials safely.
5. Organize and classify materials, supplies and equipment.

### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Maintain clean work area.
  - Ensure priority areas are clear first as identified in policies and procedures.
  - Keep work areas free from clutter.
  - Keep work areas free of ice, grease and mud.
- Use appropriate equipment for task (e.g., broom, scraper, water hose, vacuum, blow pipe or air lance, mobile equipment).
  - Clean, maintain and return tools and equipment to storage immediately after use.
  - Report, tag out and/or remove defective equipment.
- Take corrective action as required.
  - Clean all spills and/or leaks.
  - Install signs and barricades as required.
  - Ensure work area is free of obstructions.
- Dispose of waste materials.
  - Follow environmental plan.
- Organize and classify materials.
  - Use shadow boards for storing equipment.
  - Use tool cribs, bins and dedicated areas for storing similar materials.



## TASK 2.3

# IDENTIFY AND RESPOND TO WORKPLACE HAZARDS

### ✓ SUB-TASKS

1. Recognize hazardous or potentially hazardous conditions.
2. Observe safety precautions in hazardous conditions.
3. Take corrective action.
4. If hazardous condition cannot be immediately corrected: put up signs, barricade area or post guard, lock out and tag and de-energize.
5. Record and report all hazardous or potentially hazardous conditions to appropriate personnel.

### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Recognize hazardous or potentially hazardous conditions.
  - Use risk assessment tools as per site policies and procedures.
  - Follow water management plans.
  - Types of hazardous conditions may include: dangerous weather and environmental conditions, heat and cold stress, wildlife, poor ground conditions (loose rock, swamp, ice), overhead hazards (trees, power lines, screen, vent tubing), underground hazards (gas lines, power lines), open holes (sumps, chutes, shafts, trapdoors, hoist pits, ladder ways), protruding objects (nails, anchors), tripping or slipping hazards (hoses, rocks, muck, ice, lichen, spills), moving equipment (trucks, loaders, forklifts, aircraft), explosives (dangerous gases, e.g., oxy-acetylene, methane, propane, H<sub>2</sub>S, HCN, chlorine), inadequate ventilation (ripped or torn vent tubing, non-operating fans), lack of or inadequate safety guards on equipment with moving or rotating parts, energy sources, reagents, engulfment, potential chemical reactions, dust, confined space, flocculants.
- Take corrective action.
  - Isolate hazard or potential hazard.
  - Guard all identified hazards using barricades and signs.
  - Post guard, if required.
  - Stop work if there are unsafe conditions.
  - Complete job hazard analysis.
  - Evacuate area if necessary.
- If hazardous condition cannot be immediately corrected.
  - Put up signs, barricade area or post guard.
  - Ensure safety of self and others.
  - Lock out, tag and de-energize as per site policies and procedures.

## **TASK 2.4** **MANUALLY LIFT AND CARRY MATERIALS**

### **SUB-TASKS**

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Assess the load.</li> <li>2. Inspect pathway and destination.</li> <li>3. Prepare to lift the load.</li> </ol> | <ol style="list-style-type: none"> <li>4. Make the lift.</li> <li>5. Carry the load.</li> <li>6. Ground the load.</li> </ol> |
|--|--|

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• Assess the load.                             <ul style="list-style-type: none"> <li>- Estimate and identify size, weight, center of gravity and dimensions of load.</li> <li>- Assess load and understand Musculoskeletal Disorder (MSD).</li> <li>- Determine if assistance is required.</li> <li>- Determine if mechanical lifting equipment is needed.</li> </ul> </li> <li>• Inspect pathway and destination.                             <ul style="list-style-type: none"> <li>- Identify and remove hazards, where possible.</li> <li>- Identify resting places, if needed.</li> <li>- Ensure clear path to travel.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Prepare to lift the load.                             <ul style="list-style-type: none"> <li>- Work within personal physical limits and limits identified in policies and procedures.</li> <li>- Ensure good footing and well-balanced stance.</li> <li>- Select safe and comfortable hand holds.</li> <li>- Grip with full palm of hand.</li> <li>- Use sit down position and keep back straight.</li> </ul> </li> <li>• Make the lift.                             <ul style="list-style-type: none"> <li>- Ensure back is kept straight, use leg muscles to lift.</li> <li>- Use proper lifting technique to avoid muscular skeletal injuries.</li> <li>- Ground the load.</li> <li>- Keep back straight and use leg muscles to lower load.</li> </ul> </li> </ul> |
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## **TASK 2.5** **RECOGNIZE CONFINED SPACE WORK AND FOLLOW POLICIES AND PROCEDURES**

### **SUB-TASKS**

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. Obtain necessary training and authorization.</li> <li>2. Prepare for confined space work.</li> </ol> | <ol style="list-style-type: none"> <li>3. Conduct pre-entry checks.</li> <li>4. Conduct confined space work.</li> </ol> |
|--|---|

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Prepare for confined space work.                             <ul style="list-style-type: none"> <li>- Complete all necessary training for confined space work.</li> <li>- Ensure certification is up to date.</li> <li>- Obtain necessary work permits, i.e., confined space, hot work.</li> <li>- Post signs.</li> <li>- Remove hazards.</li> </ul> </li> <li>• Conduct pre-entry checks as per policies and procedures.                             <ul style="list-style-type: none"> <li>- Lock out and tag all equipment, pipes and lines.</li> <li>- Ensure adequate ventilation and lighting.</li> <li>- Ensure warning devices are in place and properly calibrated to manufacturer's specifications.</li> <li>- Post a spotter.</li> <li>- Ensure proper first-aid precautions.</li> <li>- Ensure emergency rescue plans are in place.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Conduct confined space work.                             <ul style="list-style-type: none"> <li>- Communicate readiness to enter work area.</li> <li>- Re-evaluate air quality at regular intervals.</li> <li>- Regularly check air temperature.</li> </ul> </li> </ul> |
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## **TASK 2.6** **WORK AROUND MOBILE EQUIPMENT**

### **SUB-TASKS**

1. Work in authorized locations only.
2. Communicate with equipment operator.
3. Obey rules of conduct.
4. Avoid hazardous conditions.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Communicate with equipment operator.
  - Communicate with equipment operator/skip tender/cage tender/dispatch and verify acknowledgement.
  - Be aware of locations of communication equipment.
  - Use hand signals.
- Obey rules of conduct.
  - Maintain safe working distance and loads in tow.
  - Obey vehicle warning signals and alarms.
  - Yield the right of way.
- Avoid hazardous conditions.
  - Use designated travel ways around equipment.
  - Stay clear of suspended loads.
  - Avoid blind spots, remain visible.
  - Do not cross guards or barricades.
  - Recognize and utilize safety bays.
  - Be aware of trailing cables.
  - Obey signage and established right of way policies.

## **TASK 2.7** **WORK AROUND STATIONARY EQUIPMENT**

### **SUB-TASKS**

1. Work in authorized locations only.
2. Communicate with equipment operator.
3. Obey rules of conduct.
4. Avoid hazardous conditions.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Work in authorized locations only.
  - Including but not limited to: drill, pumps, pneumatic equipment, high pressure hoses and generators, ensuring guards are in place.
  - Work from safe location.
- Obey rules of conduct.
  - Maintain safe working distance.
  - Observe alarms and warning systems.
  - Communicate with co-workers.
- Avoid hazardous conditions.

 **TASK 2.8**  
**WORK AROUND WATER HAZARDS**

✓ **SUB-TASKS**

1. Operate equipment safely in and around water hazards.
2. Ensure safety of personnel working around water hazards.
3. Identify type of water hazard.

✓ **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Operate equipment safely in and around water hazards.
  - Follow legislation and company policies and procedures as outlined.
  - Collect samples from tailings pond.
  - Utilize appropriate fall protection.
  - Use re-claim pumps.
  - Maintain berms.
- Ensure safety of personnel working around water hazards.
  - Use personal floatation devices (PFDs).
  - Monitor water levels.
  - Adhere to environmental standards.
  - Perform dam monitoring.
- Identify type of water hazard.

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## Area of Competency 3: Signs, Barricades, Traffic, Plans and Drawings



### TASK 3.1

## RECOGNIZE AND COMPLY WITH SIGNAGE, BARRICADES, AUDIBLE ALARMS AND EQUIPMENT LIGHT INDICATORS

#### ✓ SUB-TASKS

1. Recognize and comply with signage.
2. Recognize and comply with barricades.
3. Recognize equipment and system audible and visual alarm signals.
4. Recognize equipment and system indicator lights.
5. Do not alter or remove warning signs, lights, audible alarms or barricades, without proper authorization.

#### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Recognize and comply with signage.
  - Includes informational signs and tags, cautionary and danger signs (e.g., electrical hazard), directional signs, labels (e.g., Workplace Hazardous Information System (WHMIS)).
- Recognize and comply with barricades.
  - Includes cautionary tape, danger/do not enter tape, physical barriers (i.e., berms, concrete stoppers, steel cable) and protective barriers (i.e., snow fence, environmental).
- Recognize equipment and system audible and visual alarm signals.
  - Includes bells, buzzers, horns, whistles, sirens, shaft signals.
  - Includes ready lights, fault indicators, emergency indicators.
- Recognize equipment and system indicator lights.
  - Includes shaft warning lights, open hole lights, transportation of explosives, strobe light, equipment audible alarms, blast warning signs and lights, gaseous alarms, equipment start up, mixing alarms, amperes meter, pressure gauges, fault finder alarms.



### TASK 3.4

## RECOGNIZE AND COMPLY WITH TRAFFIC MANAGEMENT PLANS

#### ✓ SUB-TASKS

1. Recognize traffic signs and lights.
2. Comply with traffic rules and patterns.

#### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Recognize traffic signs and lights.
  - Includes: traffic signs, blasting signs, directional signs, restricted area signs.
- Comply with traffic rules and patterns.
  - Includes: traffic lights, restricted traffic area, right of way, right- and left-hand drive areas, emergency vehicle movement.
  - Follow site policies and procedures (e.g., call-in protocols, ramp protocols, designated parking).

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## Area of Competency 4: Fire Safety





## TASK 4.1

# BE PREPARED TO RESPOND TO FIRES

### ✓ SUB-TASKS

1. Classify fires by hazard.
2. Know location of fire extinguishers and fire hoses.
3. Demonstrate knowledge of components and use of fire extinguishers.
4. Inspect fire extinguishers and keep up to date.
5. Report all discharged or defective fire extinguishers to appropriate personnel.
6. Demonstrate knowledge of equipment fire suppression system.
7. Know location of emergency evacuation/in-evacuation/muster points.
8. Knowledge of location of fire suppression activation points.

### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Classify fires by hazard.
  - Rubber, compressor rooms, electrical, grease, oil, equipment, chemical, concentrate.
- Demonstrate knowledge of components and use of fire extinguishers.
  - Identify classes of fires: A - paper, wood, trash; B - flammable liquids, lubricants, paints; C - electrical; D - combustible metals.
  - Recognize potential for explosion (e.g., equipment fire, tire fire).
  - Identify standard types, sizes and applications of fire extinguishers.
  - Identify names and functions of principal components of fire extinguishers.
  - Identify ranges and limitations of fire extinguishers.
  - Understand safety precautions for fire extinguishers, including CO2 hazards due to misuse.
- Demonstrate knowledge of equipment fire suppression system.
  - Activate fire suppression system.
  - Ability to dismount safely after activation if needed.

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## Area of Competency 5: Emergency Situations



## TASK 5.1

# PREPARE FOR EMERGENCY SITUATIONS AND CONDITIONS

### ✓ SUB-TASKS

1. Know the locations of emergency evacuation/in-evacuation/muster points.
2. Know the locations of fire extinguishers, hoses, equipment.
3. Know the location of first aid kits, stations and attendants.
4. Know the location of and how to use eye wash stations, emergency showers, Safety Data Sheets (SDS), respiratory protection (e.g., self-contained breathing apparatus (SCBA), self-rescuer), gas detectors.
5. Know the location of emergency tents, escape way locations, routes and markings, refuge stations.
6. Know the location of equipment emergency stop devices.
7. Know the location of spill kits.
8. Know the emergency procedures.
9. Know emergency reporting protocols.

### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Know the location of equipment emergency stop devices.
  - E.g., pull cord on conveyors, fuel shut offs, positive air shut offs, AED equipment.
- Know the emergency procedures.
  - E.g., alarm procedure, communication protocol and emergency response.
  - Emergency contact number, appropriate radio channel to report emergency.



## TASK 5.2

# COMPLY WITH WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEMS (WHMIS)

### ✓ SUB-TASKS

1. Identify hazard symbol classifications.
2. Access, understand and follow SDS instructions.
3. Maintain WHMIS certification.

### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Identify hazard symbol classifications.
  - Hazard symbols include: Class A: compressed gas; Class B: flammable and combustible material; Class C: oxidizing material; Class D: poisonous and infectious material; Class E: corrosive material; Class F: dangerously reactive materials.
- Access, understand and follow SDS instructions.
  - Knowledge of location of further instructions and key contact personnel.



## TASK 5.4

# UNDERSTAND, RESPOND TO AND REPORT EMERGENCIES

### ✓ SUB-TASKS

1. Understand and properly respond to all emergencies.
2. Report all incidents/emergencies, as per company policies.
3. Secure incident/emergency site.

### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Respond to all emergencies.
  - E.g., fire, medical, chemical, equipment, environmental (in-rush of water, major falls of ground, rush of muck), inadvertent stops, stray bells, dogging, high water shaft bottom, power failure.
  - Stay calm and assess the situation.
  - Interpret alarms and other indicators to determine type of emergency and need for evacuation.
  - Activate emergency protocol, release stench gas (if applicable).
  - Follow emergency response plan.
  - Evacuate if necessary.
  - Follow safest escape route.
  - If unable to reach refuge station, barricade self in safe location, ensuring supply of air.
  - Await further instructions.
  - Follow instructions of designated emergency personnel.
- Report and document all emergencies and incidents.
  - Complete all required reports and forms.
  - Report emergency or incident to appropriate personnel according to policies and procedures.
- Secure incident/emergency site.
  - Secure and freeze the scene.
  - Warn others.
  - Activate alarms.
  - Follow communication protocols.
  - Take corrective action if appropriate (e.g., emergency shutdown procedure).

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## Area of Competency 6: Energy Sources



## TASK 6.1

# LOCK OUT, TAG, DE-ENERGIZE AND TEST EQUIPMENT

### ✓ SUB-TASKS

1. Lock out equipment for repair or maintenance as per site policies and applicable regulations.
2. Tag equipment for repair or maintenance as per site policies and applicable regulations.
3. De-energize equipment and verify zero energy state for repair or maintenance.

### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Lock out equipment for repair or maintenance as per site policies and applicable regulations.
  - De-energize equipment.
  - Ensure safety of self and others.
  - Ensure safety of equipment.
  - Identify types of locks including personal locks, enclosures, multi-locks, lock boxes.
- Lock out and tag for commissioning and testing as per site policies and procedures.
- Electrically powered equipment.
  - Isolate power supply by: disconnecting switch, shutting off breaker, using isolation bar/scissor locks, locking out equipment correctly, attaching required lock to isolation bar/scissor lock, ensuring appropriate key storage and handling.
- Mechanical equipment.
  - Lock out by: ensuring that no material can enter equipment being repaired/maintained, shutting down process as required, shutting off valve nearest flange to be blanked, draining, purging, depressurizing or flushing lines before repair/maintenance to ensure that stored energy is dissipated or contained, locking out valves using chain lock where applicable.
- Tag equipment for repair or maintenance as per site policies and applicable regulations.
  - Identify types of tags, the colours and their use.
  - Complete all required information on tag.
  - Record lock out.
  - Inform appropriate personnel of equipment lock out.
- De-energize equipment and verify zero energy state for repair or maintenance.
  - Ensure zero energy state (ZES) for equipment (e.g., local and remote bump test).



## TASK 6.2

# WORK AROUND ENERGY SOURCES

### ✓ SUB-TASKS

1. Understand and recognize energy sources, stored and potential.
2. Recognize when equipment is locked out and tagged and de-energized.

### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Recognize energy sources, stored and potential.
  - Mechanical, hydraulic, kinetic, potential, pneumatic, electrical, thermal, chemical, nuclear, overhead and underground services.

# SURFACE MINER

## Area of Competency 8: Communicate

## **TASK 8.1** **LISTEN ACTIVELY**

### **SUB-TASKS**

1. Pay attention to person giving the message.
2. Ask person to repeat information if not understood completely.
3. Confirm information by repeating or rephrasing.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Pay attention to person giving the message.
  - Reduce surrounding noises by stopping equipment and tools or moving away from noise.
  - Allow speaker to finish message before responding.

## **TASK 8.2** **SPEAK CLEARLY AND CONCISELY**

### **SUB-TASKS**

1. Give clear and concise directions.
2. Use common language and terminology of work site.
3. Confirm understanding.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Give clear and concise directions.
  - Organize your thoughts before speaking.
  - Use appropriate volume and tone of voice.
  - Use appropriate body language.
  - Use sketches as required to assist in understanding.
- Confirm understanding.
  - Ask open-ended questions to make sure directions were understood.

## **TASK 8.3** **USE COMMUNICATION DEVICES**

### **SUB-TASKS**

1. Familiarize self with equipment.
2. Know how to use equipment.
3. Conduct pre-operational check.
4. Use proper communication etiquette.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Familiarize self with equipment.
  - Includes: two-way radios, telephones, bells, pager phones, public address systems, CB radios, dispatch system (e.g., Modular, WENCO).
  - Use only authorized communication systems.
- Conduct pre-operational check.
  - For two-way radios and pager phones (prepare radio, ensure battery is fully charged, test radio).
  - Use proper communication etiquette.
- Use appropriate radio channels, language and codes.
  - Avoid unnecessary chatter.
  - Maintain radio silence as appropriate.
  - Reduce background noise, such as satellite radio.
  - Follow control room protocol.



## **TASK 8.4** **CONVEY MESSAGE USING SIGNALS**

### **SUB-TASKS**

1. Ensure visual contact.
2. Use and understand appropriate signals for the task.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Ensure visual contact.
  - Take signals from one person only.
  - Confirm signals.
- Use appropriate signals for the job.
  - Includes visual and audible (e.g., hand signals, light signals, horns, bells and whistles).
  - Includes signals for: lifting devices (cranes, cage, skip), tramming, conveyance, aircraft and helicopters.

## **TASK 8.5** **USE WORKPLACE TECHNOLOGIES**

### **SUB-TASKS**

1. Use digital-based training modules.
2. Read and understand machine parameters.
3. Receive and follow dispatch instructions.
4. Use digital input services.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Use digital-based training modules.
  - Interactive digital program, simulators.
  - Enter and track training data.
- Read and understand machine parameters.
  - Electronic warning cluster, warning lights and audible alarms, computer screens.
  - Includes heavy equipment status monitoring screens, in-plant diagrams, on-line references (SDS, SOPs).
- Receive and follow dispatch instructions.
  - Dispatch screen (e.g., Modular, WENCO, Mine Star).
- Use digital input services.
  - Electronic forms, databases, Internet, e-mail.
  - Control and maintenance of Standard Operating Targets and Standard Operating Procedures.

## **TASK 8.6** **COMPLETE WORKPLACE DOCUMENTATION**

### **SUB-TASKS**

1. Use appropriate form.
2. Write legibly.
3. Be specific.
4. Use correct terminology.
5. Submit or file immediately, as required.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Use appropriate form.
  - Includes inspection checklists, logbooks, cross shift notes, shift reports, production reports, near miss reports, incident reports, safety system cards, time cards, training status reports.
- Be specific and timely.
  - Include accurate information, appropriate details and complete report in full and submit in a timely manner.

# SURFACE MINER

## Area of Competency 9: Be Professional

## **TASK 9.1** **WORK IN A TEAM ENVIRONMENT**

### **SUB-TASKS**

1. Respect team members.
2. Be professional.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Respect team members.
  - Accommodate each other's communication needs (language differences).
  - Cooperate with each other (need to be able to trust one another and rely upon each other).
  - Be tolerant of others.
  - Be willing to learn from others; be willing to mentor others.
- Be professional.
  - Understand requirements for the job.
  - Show up to work on time.
  - Demonstrate a strong work ethic.
  - Understand chain of command.
  - Follow, model and promote safety and legislative requirements.

## **TASK 9.2** **WORK IN A CULTURALLY DIVERSE ENVIRONMENT**

### **SUB-TASKS**

1. Respect practices of co-workers and local populations.
2. Respect social and cultural differences.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Respect practices of co-workers and local populations.
  - Be open-minded.
- Respect social differences.
  - Show interest in others (ask about work experience, family).
  - Be a role model for others.
  - Knowledge and understanding of company proprietary process.

# SURFACE MINER

## Area of Competency 10: Equipment Knowledge



## TASK 10.1

# DEMONSTRATE EQUIPMENT KNOWLEDGE

### ✓ SUB-TASKS

1. Trained, qualified and authorized for proper use and operation of equipment.
2. Conduct pre-operational checks.
3. Properly mount and dismount equipment.
4. Start equipment.
5. Conduct operational checks.
6. Drive equipment to worksite, as required.
7. Shut down equipment (normal and emergency situations).
8. Conduct post-operational check.
9. Knowledge of refueling procedure.
10. Toggle controls to release stored energy.
11. Use appropriate ventilation supplies for operating.

### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Trained and authorized for proper use and operation of equipment.
  - Follow manufacturer's recommendations and specifications.
  - Follow safe operating procedures.
  - Know capabilities and limitations of equipment.
- Conduct pre-operational checks.
  - Inspect equipment for defects, hazards and potential hazards.
  - Identify and assess severity of equipment defects.
  - Take corrective action to restore normal equipment operation.
  - Record defect(s) and corrective action taken in logbook.
  - Damage to equipment.
  - Steering.
  - Test brakes, as per manufacturer's specifications.
  - Tires and undercarriage pre op check.
  - Know and understand fire suppression systems.
  - Bolts, keepers and holders.
  - Oil spills and/or excessive grease.
  - Pinion and ball gears.
  - Rope windows.
- Inspect layout of hoist.
  - Conveyance inspections.
  - Test all forms of communication – radio, bell phones, pager phones.
  - Mechanical, electrical and HMI (Human-Machine Interface).
- Properly mount and dismount equipment.
- Ensure equipment is shut down before exiting.
  - Use three-point contact.
  - Use grab handles and handrails.
- Start equipment.
  - Neutralize controls (transmission, control levers).
  - Activate power supply (master switch).
  - Use warning signal before start-up.
  - Activate ignition.
- Conduct operational checks.
  - Read and countersign logbook.
  - Fill out pre-operational check sheet.
  - Check gauges, consoles and alert indicators.
  - Ensure air and oil are at required levels.
  - Listen for unusual noises (engine, power train).
  - Check brakes and steering are functional.
  - Check warning systems and lights are operating.
- Hoist testing (trial run, brake tests, conveyance checks, cage and skip checks).
  - Test hoist limits of travel – over wind, under wind, track limit.
- Drive equipment to worksite, as required.
  - Wear seat belts.
  - Use appropriate warning lights and signals.
  - Test service and emergency brakes.
  - Follow designated travel routes.
  - Observe speed limit, traffic signs, traffic patterns and rights-of-way.
  - Adjust speed according to road and weather conditions.
  - Listen for unusual noises (engine, power train).
- Operate equipment.
  - Wear seatbelts.
  - Use appropriate warning lights and signals.
  - Test service and emergency brakes.
  - Follow designate travel routes.
  - Observe speed limit, traffic signs, traffic patterns and rights-of-way.
  - Operate machine controls smoothly.
  - Adjust speed according to road and weather conditions.
  - Listen for unusual noises (engine, power train).
  - To maximize efficiency and ensure safety of other personnel and equipment.
  - Assess material and site conditions to determine appropriate operating techniques and speeds.
  - Monitor ammeter.
- Shut down equipment (normal situations)
  - Park in designated areas.
  - Set parking/emergency brake.
  - Ground all equipment implements.
  - Shut off ignition and/or fuel supply.
  - Toggle controls to release stored energy.
  - Shut off master switch.
  - Set wheel chocks.
  - Lock out and tag as required.
- Shut down equipment (emergency situations).
  - Recognize and respond to alarms.
  - Shut down as prescribed for type of hazard.
  - Set off fire suppression system, as required.
  - Report incident to appropriate personnel.
- Conduct post-operational check.
  - Fill out logbook.

# SURFACE MINER

## Area of Competency 12: Operate Support Equipment

**THE FOLLOWING PRINCIPLES APPLY TO ALL TASKS UNDER THIS AREA OF COMPETENCY**

- ✓ Adhere to Area of Competency 10 – Equipment Knowledge
- ✓ Adhere to Task 3.4 - Recognize and comply with traffic management plans
- ✓ Adhere to Task 8.4 - Convey message using signals
- ✓ Adhere to operating manuals and manufacturers’ specifications/recommendations

**TASK 12.1  
OPERATE LIGHT OR SERVICE VEHICLE**

**✓ SUB-TASKS**

1. Demonstrate equipment knowledge.
2. Ensure proper housekeeping of vehicle.
3. Load, transport and unload materials, supplies and/or personnel.

**✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Ensure proper housekeeping of vehicle.
  - Keep vehicle free from clutter.
  - Ensure vehicle is equipped with appropriate equipment including but not limited to; first aid kit, survival kit, spill kit, fire extinguisher, wheel chalk.
- Load, transport and unload materials, supplies and/or personnel.
  - Ensure protection of self and others.
  - Ensure non-movement of vehicle while loading.
  - Observe load limitations.
  - Secure seats, safety bars and chains.
  - Follow procedures when: towing trailers/carriers to transport materials (capacity, transporting materials on board, positioning and fastening).
  - Secure loads.

**TASK 12.2  
OPERATE UTILITY VEHICLES**

**✓ SUB-TASKS**

1. Demonstrate equipment knowledge.
2. Move equipment and materials.
3. Transport personnel.

**✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Demonstrate equipment knowledge.
  - Check for emergency equipment (ABC fire extinguisher, first aid kit, vehicle permit, tool kit).
  - Boom truck.
  - Ensure fire suppression equipment, if required.
- Move equipment and materials.
  - Do not overdrive headlight while driving.
  - Follow load limitations.
  - Take precautions at ramps, corners and intersections.
  - Follow procedures when towing trailers/carriers to transport materials (capacity, transporting materials on board, positioning and fastening).
  - Follow explosive management plan.
- Transport personnel.
- Ensure protection of self and others.

## **TASK 12.3** **OPERATE FUEL OR LUBE TRUCK**

### **SUB-TASKS**

1. Demonstrate equipment knowledge.
2. Transfer fuel and lube to equipment.
3. Load fuel or lube truck.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Demonstrate equipment knowledge.
  - Ensure no smoking or open flame in and/or around vehicle.
  - Visually inspect chassis and attachments to verify integrity of tank.
  - Confirm presence of warning placards for dangerous goods.
  - Observe load limitations.
- Transfer fuel and lube to equipment.
  - Approach equipment with operator in full view.
  - Ensure equipment has been stopped/parked and attachments grounded.
  - Ensure non-movement of vehicle while transferring.
  - Ensure proper hook-up of equipment.

## **TASK 12.4** **OPERATE WATER TRUCK**

### **SUB-TASKS**

1. Demonstrate equipment knowledge.
2. Control dust on roads and ramps.
3. Wash roads and walls.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Demonstrate equipment knowledge.
  - Ensure water tank is full.
  - Observe load limitations.
  - Refill tank as required.
- Control dust on roads.
  - Ensure ramps/roads are not excessively watered.

## **TASK 12.5** **OPERATE TOW TRUCK**

### **SUB-TASK**

1. Demonstrate equipment knowledge.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- No additional references or examples.



 **TASK 12.6**  
**OPERATE LOW BED OR FLOAT**

✓ **SUB-TASKS**

1. Demonstrate equipment knowledge.
2. Load and unload low bed/float.

✓ **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- No additional references or examples.

 **TASK 12.7**  
**OPERATE CABLE REELER OR CABLE TRUCK**

✓ **SUB-TASK**

1. Demonstrate equipment knowledge.

✓ **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Demonstrate equipment knowledge.
- Check articulation, reeler controls.
- Move load.
  - Ensure load is properly aligned with hoisting equipment before winching.
  - Winch in as straight a line as possible.
  - Control play-out of cable (keep several cable wraps on drum).
  - Move load to desired location and disconnect from cable, chains or rope.
  - Rewind cable, chains or rope onto winch drum.

 **TASK 12.12**  
**OPERATE SUPPORT LOADER**

✓ **SUB-TASKS**

1. Demonstrate equipment knowledge.
2. Select and utilize appropriate implement for selected task.
3. Change implements as needed.

✓ **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Select and utilize appropriate implement for selected task.
  - Rock bucket, clean up bucket, forks, grapple, rock breaker.
- Change implements as needed.
  - Follow appropriate procedures.



## TASK 12.15 OPERATE SKID STEER

### ✓ SUB-TASKS

1. Demonstrate equipment knowledge.
2. Knowledge of limitations.
3. Load and unload materials/supplies safely.

### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Demonstrate equipment knowledge.
  - Raising and lowering, tilting and tipping bucket.
  - Loading and balancing within limitations of bucket and machine.
  - Safely carrying load on grades.
  - Use spotter with proper equipment.
  - Ground equipment on shut down.
- Knowledge of limitations.
  - Do not exceed limitations.
  - Use appropriate equipment attachments.



## TASK 12.22 OPERATE WATERCRAFT

### ✓ SUB-TASKS

1. Demonstrate equipment knowledge.
2. Load and unload.
3. Move equipment, materials and personnel.

### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Demonstrate equipment knowledge.
  - Identify hazardous or potentially hazardous conditions including waterway hazards (dead heads, sand bars, shallow channels), tripping hazards (ropes and containers), improperly marked fuel containers, sudden changes in weather and/or marine conditions.
  - Identify safety devices on watercraft (paddles, life jackets).
- Load and unload.
  - Ensure dock has capacity for watercraft (size, depth of water).
  - Position watercraft in designated/approved area (dock).
  - Comply with load limits.
  - Distribute load evenly to prevent tipping.
  - Secure loads and materials.
- Move equipment and personnel.
  - Ensure vehicle permit, proof of insurance and valid operator's license are with the watercraft, when required.
  - Ensure all personnel are wearing lifejackets/personal floatation devices.
  - Follow a designated route.



## TASK 12.23

# OPERATE DEWATERING/THICKENING SYSTEMS

### ✓ SUB-TASKS

1. Demonstrate equipment knowledge.
2. Monitor reagent systems.
3. Knowledge of water management plan.

### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Demonstrate equipment knowledge.
  - Includes stock tanks, decanters, pumping systems, sampling systems, rakes, drive system, feed wells.
  - Check shell, rakes (height, torque, integrity), motor and gear box, U/F pumps and density, flow rates, water supply, motion detectors, monitoring devices, piping.
  - Knowledge and understanding of lock out tag out procedures.
  - Follow communication procedures regarding interlocking systems.
- Monitor reagent systems.
  - Ensure system contains proper amount, type and strength of reagents.
  - Measure quantities of reagents.
- Knowledge of water management plan.
  - Follow government environmental and legislated policies and procedures.



## TASK 12.33

# OPERATE TRUCK-MOUNTED HOIST

### ✓ SUB-TASKS

1. Demonstrate equipment knowledge.
2. Set up for lift.
3. Select and use proper rigging/lifting equipment.
4. Secure and balance load.
5. Prepare equipment for travel.
6. Demonstrate and observe hand signals.

### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Demonstrate equipment knowledge.
  - Follow manufacturer's instructions including work within limitations of equipment and attachments (interpreting load chart).
- Set up for lift.
  - Check for hazards and adequate clearance.
  - Select level and firm surface.
  - Utilize stabilizing equipment if equipped.
- Select and use proper rigging/lifting equipment.
  - Adhere to lift limits and capacities.
  - Check conditions of lifting equipment (i.e., slings, shackles).
- Prepare equipment for travel.
  - Boom stowed correctly.
  - Properly store and secure all tools and equipment.
- Demonstrate and observe hand signals.
  - Establish and use appropriate signals.
  - Establish and confirm signal person.



## TASK 12.34 OPERATE PIPELAYER

### ✓ SUB-TASKS

1. Demonstrate equipment knowledge.
2. Operate pipelayer.
3. Working with pipe.
4. Working with people on the ground.
5. Working with other equipment.

### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Operate pipelayer.
  - Position machine for hoisting.
  - Raise and lower the boom.
  - Position the counterweight to counter-balance load.
- Working with pipe.
  - Follow proper rigging for pipe length.
  - Balance load.
  - Raise and lower pipe.
  - Travel with pipe hoisted.
- Working with people on the ground.
  - Follow hand signals.
  - Monitor location of ground workers.
  - Ensure all machine movements are slow and precise.
- Working with other equipment.
  - Work in tandem with one or more pipelayers.
  - Work in tandem with excavator.

# SURFACE MINER

## Area of Competency 13: Operate Heavy Equipment

**THE FOLLOWING PRINCIPLES APPLY TO ALL TASKS UNDER THIS AREA OF COMPETENCY**

- ✓ Adhere to Area of Competency 10 – Equipment Knowledge
- ✓ Adhere to Task 3.4 - Recognize and comply with traffic management plans
- ✓ Adhere to Task 8.4 - Convey message using signals
- ✓ Adhere to operating manuals and manufacturers’ specifications/recommendations

**TASK 13.1**  
**OPERATE HAULAGE TRUCK**

**SUB-TASKS**

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Demonstrate equipment knowledge.</li> <li>2. Demonstrate emergency systems.</li> <li>3. Position truck for loading.</li> </ol> | <ol style="list-style-type: none"> <li>4. Haul loads.</li> <li>5. Dump loads.</li> </ol> |
|--|--|

**REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Demonstrate equipment knowledge.
  - Ensure clear path for truck movement.
  - Check site for surface cracks, berm height or any potential hazards.
- Position truck for loading.
  - Be aware of hazards i.e., overhead, electrical, tubing, pipe, services.
  - Position according to various loading equipment i.e., electric shovel, hydraulic shovel, loader, backhoe.
- Haul loads.
  - Be aware of hazards i.e., overhead, electrical, tubing, pipe, services.
  - Be aware of pedestrians.
  - Proper braking systems and procedures for ramps.
  - Drive according to road conditions.
  - Prevent and report spillage according to policies and procedures.
- Dump loads.
  - Lower and secure box.
  - Drive with box down.
  - Position accordingly to various dumping scenarios and company policies and procedures i.e., spotter, no spotter, berms, hopper, stockpile.
- Muck with remote controlled LHD.
  - Operate from safe mucking setup as per company procedures.
  - Ensure no personnel are in danger area.
- Store remote transmitter/receiver.
  - Store as a set-in designated area to prevent damage or moisture contamination.

## **TASK 13.5** **OPERATE SCRAPER**

### **SUB-TASKS**

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Demonstrate equipment knowledge.</li> <li>2. Raising, lowering and adjusting bowl.</li> <li>3. Travelling.</li> </ol> | <ol style="list-style-type: none"> <li>4. Loading and spreading material.</li> <li>5. Cutting or filling to grade.</li> <li>6. Dumping bowl.</li> </ol> |
|---|---|

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Raising, lowering and adjusting bowl.                     <ul style="list-style-type: none"> <li>- Angle and height.</li> </ul> </li> <li>• Travelling.                     <ul style="list-style-type: none"> <li>- Up grade, down grade and on the level.</li> <li>- Ensure correct bowl height.</li> <li>- Drive according to road conditions.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Loading and spreading material.                     <ul style="list-style-type: none"> <li>- Self-loading, assist loading.</li> </ul> </li> </ul> |
|---|--|

## **TASK 13.6** **OPERATE GRADER**

### **SUB-TASKS**

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Demonstrate equipment knowledge.</li> <li>2. Raise, lower and adjust attachments/implements.</li> </ol> | <ol style="list-style-type: none"> <li>3. Demonstrate proper grading techniques.</li> <li>4. Ditching.</li> </ol> |
|---|---|

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Raise, lower and adjust attachments/implements.                     <ul style="list-style-type: none"> <li>- Adjust attachments/implements to within parameters of the machine.</li> </ul> </li> <li>• Demonstrate proper grading techniques.                     <ul style="list-style-type: none"> <li>- Fill in holes.</li> <li>- Remove oversized chunks.</li> <li>- Maintain roadway with ballast.</li> <li>- Picking up a windrow and/or spreading a windrow according to site policies and procedures.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Ditching.                     <ul style="list-style-type: none"> <li>- Demonstrate proper ditching techniques according to circumstances.</li> <li>- Maintain proper slope.</li> <li>- Maintain windrows.</li> </ul> </li> </ul> |
|---|---|

## **TASK 13.7** **OPERATE TRACK DOZER**

### **SUB-TASKS**

1. Demonstrate equipment knowledge.
2. Transport/relocate dozer.
3. Push and/or rip materials.
4. Conduct loading unit clean-up.
5. Dump management.
6. Live pile management.
7. Road construction and maintenance.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Demonstrate equipment knowledge.
  - Travel up grade and down grade in an efficient manner.
  - Select correct gear and vehicle speed.
  - Position vehicle and ensure correct blade and/or attachment.
  - Observe signals and procedures (forward and backward movement).
  - Lower attachments to ground.
- Transport/relocate dozer.
  - Via lowboy, haul truck or walking according to site specifications.
- Push and/or rip materials.
  - Load blade, carry material, dump material.
  - Follow proper ripping techniques according to material type.
- Conduct loading unit clean-up.
  - Shovels, excavators, loaders, etc.
- Dump management.
  - Grade control.
  - Dump height and limit control.
  - Maintain berm height according to code.
  - Manage haul truck traffic, if required.
- Live pile management.
  - Follow lock out procedure.
  - Develop and communicate plan to applicable parties.
- Road construction and maintenance.
  - Construction of primary and/or secondary road.
  - Construction of a ramp.
  - Perform tasks according to engineered plans.
  - Fill and repair roads according to site policies and procedures.

## **TASK 13.8** **OPERATE RUBBER-TIRED DOZER**

### **SUB-TASKS**

1. Demonstrate equipment knowledge.
2. Transport/relocate dozer.
3. Push materials.
4. Conduct loading unit clean-up.
5. Road construction and maintenance.
6. Assist in moving power cable stands.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Demonstrate equipment knowledge.
  - Travel up grade and down grade in an efficient manner.
  - Lower attachments to ground.
- Transport/relocate dozer.
  - Via lowboy, haul truck or walking according to site specifications.
- Push materials.
  - Load blade, carry material, dump material.
  - Ensure adequate clearance.
  - Operate on uneven surfaces.
  - Utilize proper stockpiling practices.
- Conduct loading unit clean-up.
  - Shovels, excavators, loaders, etc.
- Road maintenance.
  - Fill and repair roads according to site policies and procedures.
- Assist in moving power cable stands.
  - Follow directions from ground person or spotter.



## **TASK 13.9** **OPERATE PRODUCTION LOADER**

### **SUB-TASKS**

1. Demonstrate equipment knowledge.
2. Loading.
3. Travelling/tramming.
4. Transport equipment and/or supplies.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Demonstrate equipment knowledge.
  - Raising and lowering bucket.
  - Push plate.
  - Tilting and tipping bucket.
  - Selecting correct gear for given operation.
  - Lower attachments to ground.
- Loading.
  - Knowledge of material to be loaded.
  - Use proper techniques to load material for transport.
- Travelling/tramming.
  - Ensure bucket is in safe transporting condition.
  - Maintain floor and carry load at appropriate height.
- Deliver equipment and/or supplies.
  - Ensure proper roadway conditions.
  - E.g., ground support, power supplies, service, pipes, electrical.

## **TASK 13.10** **OPERATE HYDRAULIC EXCAVATOR OR BACKHOE**

### **SUB-TASKS**

1. Demonstrate equipment knowledge.
2. Knowledge of face prep and explosive procedures.
3. Dig, swing, dump.
4. Conduct loading into a hauling unit.
5. Perform ditching and sump construction.
6. Conduct ripping as needed.
7. Live pile management.
8. Box cleaning.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Demonstrate equipment knowledge.
  - Inspect boom, stick and bucket pins, bucket stick and bucket hydraulics.
  - Lower attachments to ground.
  - Drain air tanks.
- Dig, swing, dump.
  - Utilize proper operating technique.
- Conduct loading into a hauling unit.
  - Bench load, same level load.
- Perform ditching and sump construction.
  - Follow grade.
  - Spoil pile placement.
  - Use appropriate side slope according to materials and regulations.
- Conduct ripping as needed.
  - Hard or frozen materials.
- Live pile management.
  - Follow policies and procedures.
  - Angle of repose.
  - Dig in known areas (locates and permits).
- Box cleaning.
  - According to site policies and procedures.

## **TASK 13.11** **OPERATE HYDRAULIC SHOVEL**

### **SUB-TASKS**

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Demonstrate equipment knowledge.</li> <li>2. Perform appropriate shovel set-ups (single and double back-ups).</li> <li>3. Dig, swing and dump.</li> </ol> | <ol style="list-style-type: none"> <li>4. Maintain grade and manage dig face.</li> <li>5. Maintain required truck placement and capacity (payload).</li> <li>6. Identify different material types.</li> </ol> |
|---|---|

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Demonstrate equipment knowledge.                     <ul style="list-style-type: none"> <li>- Ensure site is clear.</li> <li>- Ensure adequate clearance for equipment and attachments.</li> <li>- Ensure there are no buried utilities in job area.</li> <li>- Check condition of teeth, bucket, bucket pins, bucket hydraulics, stick and boom, tracks and track frames, pivot pins.</li> <li>- Ensure bucket is in required travel position.</li> <li>- Lower attachments to ground.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Shovel set-ups.                     <ul style="list-style-type: none"> <li>- Condition of dig face is suitable.</li> <li>- Position vehicle on a firm base.</li> <li>- Ensure adequate swing clearance.</li> </ul> </li> <li>• Dig, swing and dump.                     <ul style="list-style-type: none"> <li>- Material types (e.g., rock, fine sand).</li> </ul> </li> <li>• Maintain grade and manage dig face.                     <ul style="list-style-type: none"> <li>- Follow engineering design for grade.</li> <li>- Manage overhangs.</li> </ul> </li> </ul> |
|---|--|

## **TASK 13.12** **OPERATE ELECTRIC ROPE OR CABLE SHOVEL**

### **SUB-TASKS**

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Demonstrate equipment knowledge.</li> <li>2. Perform appropriate shovel set-ups (single and double back-ups).</li> <li>3. Maintain grade.</li> </ol> | <ol style="list-style-type: none"> <li>4. Maintain required truck capacity (payload).</li> <li>5. Power cable management.</li> </ol> |
|--|--|

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Demonstrate equipment knowledge.                     <ul style="list-style-type: none"> <li>- Ensure bucket is in required travel position.</li> <li>- Lower attachments to ground.</li> <li>- Know dig heights and material types (e.g., rock, fine sand)</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Power cable management.                     <ul style="list-style-type: none"> <li>- Position of cable stands.</li> <li>- Properly marked cables.</li> <li>- Ensure proper placement of trailing cable.</li> </ul> </li> </ul> |
|--|---|

## **TASK 13.13** **OPERATE DRAGLINE OR CLAM**

### **SUB-TASKS**

1. Demonstrate equipment knowledge.
2. Perform appropriate dragline set-ups for dig positions.
3. Walk dragline into proper position for the sequence.
4. Utilize dragline digging practices to maintain optimum performance.
5. Power cable management.
6. Perform routine machine maintenance (bucket tips, lube systems, gear checks).
7. Read and follow engineered dig plans.
8. Maintain record keeping both paper and electronic.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Demonstrate equipment knowledge.
  - Ensure machine is operated within its working capacity.
- Perform appropriate dragline set-ups for dig positions.
  - Check condition of dig face and high wall for stress cracks and/or potential failure.

## **TASK 13.14** **OPERATE ROTARY OR HAMMER DRILL**

### **SUB-TASKS**

1. Demonstrate equipment knowledge.
2. Load on and off float.
3. Drill to engineered pattern design.
4. Cable management.
5. Change bits and stabilizers.
6. Sampling.
7. Record keeping.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Demonstrate equipment knowledge.
  - Inspect for high walls or crests.
  - Pull steel from ground.
- Load on and off float.
  - Follow appropriate procedures.
- Drill to engineered pattern design.
  - Understand previous blasted grounds.
  - Remote drilling procedures as per company policies, procedures and regulations.
  - Knowledge of deviations.
  - Reading monitors and screens (GPS).
  - Keep pattern square.
- Cable management.
  - Position of cable stands.
  - Properly marked cables.
  - Ensure proper placement of trailing cable.
- Change bits, steels and stabilizers as required.
  - Document appropriate information such as reason for failure, serial number, etc.
- Sampling
  - Collect and document sample as per site policies and procedures.
- Record keeping.
  - Identify and verify hole according to plan.
  - Record hole characteristics such as hardness, time to drill as required by site policies and procedures.

# SURFACE MINER

## Area of Competency 29: Conduct Blasting Operations

**THE FOLLOWING PRINCIPLES APPLY TO ALL TASKS UNDER THIS AREA OF COMPETENCY**

- ✓ Adhere to site and government legislation.
- ✓ Adhere to company explosive management plan

**TASK 29.1  
IDENTIFY EXPLOSIVES AND BLASTING AGENTS**

**✓ SUB-TASKS**

1. Identify types and forms.
2. Report all hazardous or potentially hazardous conditions to appropriate authority.

**✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Identify types and/or forms of explosives.
  - E.g., primers, detonators, detonator cord.

**TASK 29.8  
BLAST GUARDING**

**✓ SUB-TASKS**

1. Perform evacuation process.
2. Guard area.

**✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Perform evacuation process.                     <ul style="list-style-type: none"> <li>- Follow according to site policies and procedures.</li> <li>- Ensure all warnings and signals are issued prior to detonation.</li> <li>- Ensure knowledge of airflow.</li> <li>- Ensure knowledge of diamond drills or boar holes.</li> <li>- Ensure all equipment is out of the blast zone.</li> <li>- Vacate all affected areas except necessary personnel assisting blasting.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Guard area.                     <ul style="list-style-type: none"> <li>- Follow according to site policies and procedures.</li> <li>- Station a worker at each entrance or approach with detailed instructions.</li> <li>- Ensure all guards are radio equipped.</li> <li>- Ensure no personnel enter the evacuation zone.</li> <li>- Ensure no one returns to workplace affected by blasting until approved by person responsible for the blast.</li> </ul> </li> </ul> |
|--|---|

# SURFACE MINER

## Area of Competency 30: Operate Processing Equipment

**THE FOLLOWING PRINCIPLES APPLY TO ALL TASKS UNDER THIS AREA OF COMPETENCY**

- ✓ Adhere to Area of Competency 6 – Energy Sources.
- ✓ Adhere to Area of Competency 10 – Equipment Knowledge.
- ✓ Ensure proper guards are in place.

 **TASK 30.1  
MAINTAIN BINS**

✓ **SUB-TASKS**

1. Demonstrate equipment knowledge.
2. Control level.
3. Clear hang-ups/blockages.

✓ **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Demonstrate equipment knowledge.
  - Determine layout of bin process system.
  - Identify name, function and location of principal components of hoppers and bins (grizzly rails, chutes, guardrails, entry doors, level probes, covers).
  - Understand dangers of runs of discharge during shutdown and methods of preventing them.
- Control level.
  - Use appropriate systems to ensure proper levels (e.g., problems).
- Clear hang-ups/blockages.
  - Follow procedures to ensure safety of self and others when removing blockages and clearing spillages.
  - Select appropriate tools and equipment to clear hang-ups and blockages.

 **TASK 30.4  
MAINTAIN STOCKPILES**

✓ **SUB-TASK**

1. Ensure safe entry for people and equipment around stockpile.

✓ **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Ensure safe entry for people and equipment around stockpile.
  - Ensure an adequate berm is maintained.
  - Maintain minimum width for stockpile load ramps.

## **TASK 30.5** **OPERATE CRUSHER**

### ✓ **SUB-TASKS**

1. Demonstrate equipment knowledge.
2. Operate grizzly.
3. Clear blockages.

### ✓ **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Demonstrate equipment knowledge.
  - Follow start-up procedures, (do pre-operational check, ensure all auxiliary equipment is operational, set gap (as applicable)).
  - Observe special precautions and procedures when bridging occurs (stored energy).
  - Conduct operation checks (clear screens, remove tramp steel).
- Operate crusher.
  - Conduct operational checks (e.g., temperature, water flow, oil temperature).
  - Operate according to standard operating procedures.
  - Ongoing housekeeping.
  - Identify and address spillage.
- Clear blockages.
  - Anticipate unexpected movement of crusher and/or feed (resulting from stored/potential energy).

## **TASK 30.8** **OPERATE FEEDERS**

### ✓ **SUB-TASKS**

1. Demonstrate equipment knowledge.
2. Remove jams.

### ✓ **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Demonstrate equipment knowledge.
  - Includes pan feeder, screw feeder, belt feeder, pneumatic feeder, tube feeder, vibratory feeder, tripper, roll feeder, rotary valve feeder, drag feeder, hydro stroke feeder.
  - Understand layout of feeder.
  - Ensure all components are in place and functional.
  - Ensure all related systems are activated in proper sequence.
  - Cross over/under feeder at designated areas only.
- Remove jams.
  - Remove jams according to site standard operating procedures.
  - Be aware of unsuspected movement from stored (potential) energy.



## **TASK 30.9** **OPERATE SCREEN**

### **SUB-TASKS**

1. Demonstrate equipment knowledge.
2. Clear blinding.
3. Replace screen media.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Demonstrate equipment knowledge.
  - Including but not limited to, vibrating screens, linear screens, wet screens, stationary screens etc.
- Conduct pre-operational checks.
  - Anticipate unexpected movement of screen, components or feed (resulting from stored/potential energy).
  - Ensure related systems are shut down or deactivated in proper sequence.
- Set up screen.
  - Ensure footing is secure (firm and even base).
  - Ensure adequate clearance for equipment and components.
  - Clear bindings.

## **TASK 30.10** **OPERATE CONVEYOR**

### **SUB-TASKS**

1. Demonstrate equipment knowledge.
2. Convey material.
3. Remove blockages.
4. Move conveyor and components.

### **REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE**

- Demonstrate equipment knowledge.
  - Includes but not limited to: belt conveyors, drag conveyors, pneumatic conveyors, screw conveyors, bucket elevators, high angle, radial stacker conveyors.
  - Conduct pre-operational checks.
  - Anticipate unexpected movement of conveyor components or feed (resulting from stored/potential energy).
  - Check rollers and idlers for proper operations.
  - Cross under conveyor at designated areas only.
  - Stay clear of moving pulleys.
  - Record defect and corrective action taken in logbook.
- Set up conveyor.
  - Ensure footing is secure (firm and even base)
  - Ensure adequate clearance for equipment operation
  - Ensure correct alignment and adjustment of conveyor belt.
  - Ensure guards are in proper place of moving parts.
  - Ensure tail pulley switch is in place if applicable.
  - Ensure emergency stop pull cords are in place.
- Convey material.
  - Ensure related systems are activated in proper sequence.
  - Monitor flow.
  - Ensure correct placement of material on belt to prevent spillage.
- Remove blockages.
  - Ensure conveyor is stopped, locked out, de-energized, tested for zero energy and tagged before removing blockages.
  - Remove manually or mechanically.
- Move conveyor and components.
  - Load conveyor on an incline.

# SURFACE MINER

## Area of Competency 33: Perform Utility Services

## TASK 33.1 HANDLE POWER CABLE

### ✓ SUB-TASKS

1. Prep the area and establish the route.
2. Lay and mark cable.
3. Set up cable stands.
4. Follow site procedures for energizing and de-energizing.

### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Prep the area and establish the route.
  - Identify any hazards i.e. Water, haul road, high walls.
- Lay and mark cable.
  - Use appropriate site procedures and equipment.
- Set up cable stands.
  - Use appropriate site procedures.
- Follow site procedures for energizing and de-energizing.
  - Use appropriate site procedures.

## TASK 33.2 DEWATERING

### ✓ SUB-TASKS

1. Sump development.
2. Placing pipeline.
3. Pump set-up.
4. Fusing pipe.

### ✓ REFERENCE/EXAMPLES OF ABILITIES AND KNOWLEDGE

- Sump development.
  - Determine sump location and depth.
  - Mark the sump utilizing berms, barricades and/or signage.
- Placing pipeline.
  - Determine size of pipe.
  - Clear route to lay pipeline.
  - Identify low spots on pipeline and set in drainage points.
  - Mark road crossings and exposed pipelines.
  - Manage flow and leaks.
- Pump set-up.
  - Determine pump type (electric or fuel).
  - Determine pump size for maximum flow.
  - Pump placement and access.
- Fusing pipe.
  - Square pipe ends.
  - Clean pipe ends.
  - Fusing at appropriate temperature.
  - Join pipe.