

<b>Company Name:</b>	<b>Equipment/Job Identification:</b> Dragline Operator <b>Type of Equipment:</b> Crawler Crane <b>Make:</b> Manitowoc <b>Model:</b> 3000 <b>Year:</b> 1953 <b>Use:</b> Dragline
<b>Mine Name:</b>	
<b>Date of Analysis:</b>	

**Prerequisites:**

- Basic Crane 40 Hour Course
- New Miner Training (if applicable)
- Task Training
- Annual Refresher (if applicable)
- Site Specific Hazard Awareness Training

**Duty 1: Pre-Op**

Objective: The learner will explain the importance of the pre-op in determining work to be accomplished. The learner will explain and interpret information received in the pre-op training to the trainer. The learner will explain each job step, why it is conducted, any associated risk, and how to implement appropriate controls. Planning activities include the following duties:

<b>Job Steps</b>	<b>Importance Narrative (Consider Safety, Production, Maintenance)</b>	<b>Importance Ranking 1=Important 2=Very Important 3=Critical</b>	<b>Satisfactory or Needs Work</b>	<b>Procedures/Risk Resolution/ Notes/Comments</b>
Work area examination				
<ul style="list-style-type: none"> <li>• Perform self assessment               <ol style="list-style-type: none"> <li>1. Check mental condition</li> <li>2. Check physical condition</li> <li>3. Use personal protection equipment</li> </ol> </li> <li>• Approach inspection               <ol style="list-style-type: none"> <li>1. Check crawlers</li> <li>2. Check wire ropes</li> <li>3. Check sheaves</li> <li>4. Check pendant lines and boom</li> </ol> </li> </ul>	<p>Maintenance problem; could cause injury</p> <p>Maintenance problem; could cause injury</p> <p>Maintenance problem; could cause injury</p>			

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking 1=Important 2=Very Important 3=Critical	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
5. Check ground conditions				Check for overhead and underground power lines and utilities
6. Check for loose, missing or broken parts				
7. Check weather conditions				
8. Check for fresh fluid leaks (coolant, oil, etc)				
9. Check for signs of unknown activity				Check for human or vehicle tracks – determine if maintenance work had been done or unauthorized activities
10. Check glass				
• Daily inspection				
1. Check crawlers				Cracked or welded pads Check keeper pins which are located at the end of the hinge pin between the pads. Check for kinks or loose travel chains Check the sprockets and rollers for wear, alignment, and missing teeth Check for safe access (clean crawler track if needed)
2. Check car body				Check for cracked or welded parts. Check for fluid leaks Check for and clean off excess dirt and grease
3. Check for cracks				
4. Open drains for oil sumps to drain water	Maintenance problem; could cause injury			

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking 1=Important 2=Very Important 3=Critical	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
5. Check house rollers				Check for wear, spider cracks, scaling, flat spots, and bearing pieces. Check for the lack of lubrication.
6. Close air tank from the prior shift				
7. Check if wire rope is spooling straight on drums	Maintenance problem; could cause injury			
8. Check condition of wire rope	Maintenance problem; could cause injury			Refer to rope retirement criteria 30 CRF Subpart R
9. Check fairlead				Check rollers, sheaves, alignment, lubrication fittings, mounting bolts, keepers.
10. Check condition of crane mats (if used)				
11. Check the condition of the sheet metal				Check entire cab and the condition of door and track assembly Check grab iron
12. Check for obstructions of the tail swing area	Could cause injury or damage			
Pre Engine Start				
• Open the door				
• Check fire extinguishers				
• Check fluid levels	Maintenance problem; could cause dragline failure			Diesel fuel, engine oil, coolant, chain cases, sump oil, air compressor oil level, gasoline level, alcohol evaporator
• Check belts for tension				Engine, air compressor, sump pump (gear lube), kuno filter needs a full turn every day
• Check chain guard				
• Check fan shroud				
• Check air compressor belt guard				
• Check drum guards				Boom hoist, hoist line, dragline,

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking 1=Important 2=Very Important 3=Critical	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
<ul style="list-style-type: none"> <li>• Check for lock out/tag out as applies</li> </ul>				
<ul style="list-style-type: none"> <li>• Check control levers are in neutral position</li> </ul>	Inadvertent movement could cause injury or death			Hoist, Boom, Swing & Master Cutch
<ul style="list-style-type: none"> <li>• Check master clutch is disengaged</li> </ul>	Inadvertent movement could cause injury or death			
<ul style="list-style-type: none"> <li>• Adjust throttle</li> </ul>				Make sure it is not full throttle.
Start Engine				
<ul style="list-style-type: none"> <li>• Turn key and start engine</li> </ul>				
<ul style="list-style-type: none"> <li>• Check for leaks</li> </ul>				
<ul style="list-style-type: none"> <li>• Permit/allow air pressure to build up to full operating pressure</li> </ul>				
<ul style="list-style-type: none"> <li>• Check oil pressure</li> </ul>	Could cause damage			
<ul style="list-style-type: none"> <li>• Check for operators manual and load chart</li> </ul>				
<ul style="list-style-type: none"> <li>• Bring engine temperature up to a safe operating temperature</li> </ul>				
<ul style="list-style-type: none"> <li>• Engage master clutch</li> </ul>				Maintain a low idle prior to slowly engaging. Engage the clutch only after operating temperatures have been reached.
<ul style="list-style-type: none"> <li>• Check boom, hoist, and drag brakes and clutches</li> </ul>	Maintenance problem; wet or damaged linings could cause injury or equipment failure			Check boom first Boom up while holding brake on Boom down while applying brake to warm it up Dry brake lining to prevent slippage
<ul style="list-style-type: none"> <li>• Lower boom to the ground</li> </ul>				Swing to side of bucket placing boom on cribbing to reduce strain on boom pendant lines.
<ul style="list-style-type: none"> <li>• Set brakes and place levers in neutral position</li> </ul>	Inadvertent movement could cause injury or death			<b>Never leave the seat with the master clutch engaged!!</b>

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking 1=Important 2=Very Important 3=Critical	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
<ul style="list-style-type: none"> <li>Disengage master clutch</li> </ul>	Inadvertent movement could cause injury or death			
<ul style="list-style-type: none"> <li>Inspect boom</li> </ul>	Boom failure could cause injury or death			Bent, broken, or missing lacing, and damaged cords, bolts & pin connections, keepers, attachments, rollers and wire rope guides, sheaves (guards, chips, cracks, wear, damage, lubrication, bearings, alignment, & missing sheave), boom angle indicator (free moving & correct calibration), pendant lines (broken wires, pins and keepers are intact, rust, wear, lubrication, defects) equalizer (pins and keepers are intact & check sheaves), boom hoist wire rope (broken wires & strands, rust, wear, lubrication, defects), boom stops, gantry (pins keepers, sheaves, lubrication, and other damage)
<ul style="list-style-type: none"> <li>Inspect bucket</li> </ul>				Teeth, hoist chains above and below the spreader bar, spreader bar, hoist clevis, pins, and keepers, dump (trip) sheave assembly, trunions, drag yokes (frog), drag hitch clevises, all other components
<ul style="list-style-type: none"> <li>Raise the boom</li> </ul>				
<ul style="list-style-type: none"> <li>Set to desired boom angle</li> </ul>				
<ul style="list-style-type: none"> <li>Dry the hoist and drag brakes</li> </ul>	Maintenance problem; wet or damaged linings could cause injury or equipment failure			Run wire rope up and down with the brakes lightly applied to dry the brakes.

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking 1=Important 2=Very Important 3=Critical	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
<ul style="list-style-type: none"> <li>Raise bucket</li> </ul>				
<ul style="list-style-type: none"> <li>Swing machine side to side to dry the swing clutches</li> </ul>				
Pre Shift Meeting				
<ul style="list-style-type: none"> <li>Listen to supervisor instructions</li> </ul>				
<ul style="list-style-type: none"> <li>Plan daily operations</li> </ul>	proper planning improves all categories			Traffic patterns, haul road maintenance, personal protective equipment, material blending
<ul style="list-style-type: none"> <li>Discuss any change in conditions</li> </ul>				
<ul style="list-style-type: none"> <li>Participate in daily safety meeting</li> </ul>				

## Duty 2: Set-up to dig

Objective: Learner will demonstrate proper set-up procedures. The learner will explain the results of committing unsafe acts on the job. The learner will explain and demonstrate the steps to properly set up the dragline for work. The learner will explain listed job steps, why they are conducted, any associated risk, and how to implement appropriate controls. Set-up work includes the following duties:

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking 1=Important 2=Very Important 3=Critical	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
Examine the site				Mats and cribbing needed, travel route, soil conditions, any changes from previous shift, re-check the swing radius
Disengage travel dogs	Could cause injury			Discuss mounting and dismounting safety
Mount dragline	Could cause injury			If located on a hill, do not disengage travel dogs until ready to travel.
Engage master clutch				Maintain a low idle prior to slowly engaging. Engage the clutch only after operating temperatures have been reached.
Place boom at proper angle for travel	could tip over causing severe damage, injury or death			
Engage travel clutches				Ensure the drive chains are located away from digging end.
Travel onto the mats (if needed)				Center dragline on mats, make sure the idlers are not at the seam of two mats, chock/block the tracks in front of dragline
Engage directional travel lock to prevent over travel toward excavation site	Could cause dragline to be pulled into excavation causing severe damage, injury or death			
Ensure dragline is level	effects all categories			

### Duty 3: Position

Objective: The Learner will demonstrate how to properly position the dragline. The learner will explain the job steps listed, why they are conducted, any associated risk, and how to implement appropriate controls. A thorough execution of the job includes the following job steps:

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking 1=Important 2=Very Important 3=Critical	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
Re-examine conditions				
Determine the depth of the cut	Effects production and safety			Lower bucket to the bottom, raise bucket slightly, gingerly sweep back and forth to determine depth and location of material, test various radii and depths
Start working the cut	Effects production and safety			Dig within the front quadrant. DO NOT UNDERCUT!!!
Monitor ground conditions continuously while digging	Effects production and safety			
Monitor the dragline	Effects production and safety			Check engine gauges, listen for abnormal sounds, bucket conditions, wire rope condition, boom connections, wire rope alignment, sheaves, fairleads
Build and monitor stockpile				Slope for proper drainage, ensure proper placement
Prepare for shutdown				



## Duty 4: Shut Down Procedures

Objective: The Learner will demonstrate how to safely shut down the dragline. The learner will demonstrate the proper procedure for shutdown. The learner will also explain and demonstrate other job steps listed, and explain why they are conducted, any associated risk, and how to implement appropriate controls. The proper shutdown procedure will include the following job steps and activities:

Job Steps	Importance Narrative (Consider Safety, Production, and Maintenance)	Importance Narrative 1=Important 2=Very Important 3=Critical	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
Hoist bucket out of excavation				
Disengage travel locks				
Check boom angle	Effects production and safety			
Adjust boom angle for travel	Effects production and safety			
Swing to the direction of travel				
Move dragline into stable position	Effects production and safety			
Swing dragline to position safe cab access				
Position bucket on ground or crib blocks				
Engage all brakes	Effects production and safety			
Disengage master clutch	Inadvertent movement could cause injury or death			<b>Never leave the seat without disengaging the master clutch</b>
Allow engine to cool down at idle speed				
Shut off engine				
Dismount	Could cause injury			Mount/Dismount Safety
Engage travel locks	Inadvertent movement could cause injury or death			
Drain air tank				
Lubricate to manufacturer's specifications				
Re-examine site				

## Duty 5: Abnormal Conditions

Objective: The Learner will discuss how to identify abnormal conditions. The learner will discuss the proper procedure for correcting abnormal conditions. Abnormal conditions may include some or all the following:

Conditions	Importance Narrative (Consider Safety, Production, and Maintenance)	Importance Narrative 1=Important 2=Very Important 3=Critical	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
Weather				Be aware of company policy
<ul style="list-style-type: none"> <li>Lightning</li> </ul>	Exposure to lightning could cause injury or death			
<ul style="list-style-type: none"> <li>Wind</li> </ul>				
<ul style="list-style-type: none"> <li>Precipitation</li> </ul>	Could cause brakes or clutches to function improperly; effecting all three categories			
Caved in bank	Could cause severe damage, injury or death			
Medical emergencies	Could cause severe damage, injury or death			Basic first-aid procedures Be aware of company communication system and policy Know where first-aid equipment is located
Malfunction of machine	Could cause injury or equipment damage			
Fire				
Catastrophic machine failure	Could cause severe damage, injury or death			