Company Name:	Equipment/Job Identification:			
	Type of Equipment: WATER TRUCK			
Mine Name:	Make:	CATERPILLAR		
	Model:	768C		
	Year:	1990		
Date of Analysis:	Use:			

#### **Pre-Assessment**

# • List pre-requisites here

**Company Policy** 

MSHA's Tire and Rim Awareness Program

3-Point Contact Video

MSHA's Best Practice Cards

Equipment Manual

**Task Training** 

Photo of Shifting Tower

Fire Extinguisher Procedures

Window Glass Replacement Procedures

Knowledge of Communication Controls and Radio Procedures

Pre-operational Checklist

Foot Brake Procedures

Spill Kit Procedure

Fatalgrams

**Emergency Medical Procedures** 

## **Duty 1: Start of Shift Activities**

Learner will demonstrate how to conduct the safe and thorough start of shift activities. Learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. A thorough start of shift activity 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
Self assessment				
<ul> <li>Lack of sleep</li> </ul>		1		
<ul> <li>Under influence of drugs/ alcohol</li> </ul>	Has the potential of causing death or serious injury	3		
Medical conditions		1		
Personal problems		1		
Emotional status		1		
Arrive on job site		1		
Receive briefing from foreman on job site and receive equipment assignments		1		Specific work orders, task schedule, work area and conditions
Meet with previous shift to discuss job conditions		1		Weather, road conditions etc.

## **Duty 2: Pre-Operational Activities**

Learner will demonstrate how to conduct a safe and thorough pre-operational activity through observation and hands-on. Learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. A thorough pre-operational activity 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
Obtain necessary tools and equipment		1		Flashlight, rags , gloves and required PPE
Observe for any unusual conditions		1		•
Check if truck is setting level		1		
Check for body damage		1		
Approach the ladder		1		
Inspect the ladder/steps for defects	Must maintain safe access and a defective ladder could cause injury, due to slips and falls of person	2		
Climb the ladder/steps		1		Maintain 3-point contact, show video, use best practice cards
Enter the cab		1		•
Ensure parking brake is set and dash indicator light is working	To prevent an accident of the truck rolling while conducting pre-op, which could cause bodily injury	2		Explain parking brake markings. Hand brake is not the parking brake
Ensure selector lever is in neutral position and indicator light on dash is working	, , ,	1		Show photo of shifting tower
Turn off master switch		1		
Remove key and put in pocket		1		Explain why key is in your pocket
Dismount from the truck		1		Maintain 3-point contact, show video, and use best practice cards
Conduct walk around inspection	To detect equipment defects that could become a hazard to yourself and/or others, also detect conditions that should be reported to maintenance preventing loss of production.	2		Inform the trainee of the importance of the walk around, including hazards associated with work area.

Job Steps	Importance Narrative	Importance Ranking	Satisfactory	Procedures/Risk Resolution
	(Consider Safety, Production, Maintenance)	1=Important 2=Very Important 3=Critical	or Needs Work	Notes/Comments
<ul> <li>Begin on left front side of truck (proceed inspection toward left rear of truck)</li> </ul>		1		
<ul> <li>Check left front tire for cracks and seals for leakage, tread separation, side wall and cord damage</li> </ul>	To prevent blowouts, this could cause injury and/or loss of production.	2		Refer to MSHA Tire and Rim Awareness booklet
Visually check lug nuts	Make sure they are not loose, cracked or missing which could result in injury or loss production	2		Make sure they are not loose, cracked or missing.
Visually check rims for cracks and bends	The potential of stored energy release, which could result in injury or loss production.	2		
<ul> <li>Check hydraulic/ transmission tank for leaks and that mounting bolts are secure</li> </ul>		1		
<ul> <li>Check hydraulic/ transmission tank level</li> </ul>	Could loose control of equipment because of transmission failure and brake failure	2		Explain sight glass markings and operating levels. If levels are low contact maintenance.
<ul> <li>Check transmission and lines for leakage</li> </ul>		1		
<ul> <li>Check water tank mounting bolts</li> </ul>		1		
<ul> <li>Check left rear tires for cracks and seals for leakage, tread separation, side wall and cord damage</li> </ul>	To prevent blowouts, this could cause injury and/or loss of production.	2		Refer to MSHA Tire and Rim Awareness booklet
Visually check rims for cracks and bends	The potential of stored energy release, which could result in injury or loss production.	2		
Visually check lug nuts	Make sure they are not loose, cracked or missing which could result in injury or loss production	2		Make sure they are not loose, cracked or missing.
<ul> <li>Check water tank for leaks or damage</li> </ul>		1		

Job Steps	(Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory	Procedures/Risk Resolution/
		1=Important 2=Very Important 3=Critical	or Needs Work	Notes/Comments
<ul> <li>Check left side water nozzle</li> </ul>		1		
Check rear end of truck				
<ul> <li>Check rear frame for cracks and bends</li> </ul>		1		
<ul> <li>Check rear suspension cylinder for mounting bolts and leakage</li> </ul>	Load could shift causing a control problem when operating with a load	3		Explain suspension cylinder for equal height. CAUTION: If not correct height, contact maintenance immediately
<ul> <li>Check rear light assemblies for damage</li> </ul>		1		
<ul> <li>Check back-up alarm (visually)</li> </ul>		1		
<ul> <li>Check water pump for leaks</li> </ul>		1		
<ul> <li>Check spray nozzles</li> </ul>		1		
<ul> <li>Check hydraulic lines to water pump for damage or leaks</li> </ul>		1		
Check hose reel to ensure hose is secured on hose reel		1		
Check rock ejectors     located between your     rear tires		1		Explain the use of rock ejectors
Check right rear side of truck				Refer to MSHA Tire and Rim Awareness booklet
<ul> <li>Check right rear tires for cracks and seals for leakage, tread separation, side wall and cord damage</li> </ul>	To prevent blowouts, this could cause injury and/or loss of production.	2		Refer to MSHA Tire and Rim Awareness booklet
<ul> <li>Visually check rim for cracks and bends</li> </ul>	The potential of stored energy release, which could result in injury or loss production.	2		
Visually check lug nuts	Make sure they are not loose, cracked or missing which could result in injury or loss production	2		Make sure they are not loose, cracked or missing.

Job Steps	Importance Narrative	Importance Ranking	Satisfactory	Procedures/Risk Resolution/
	(Consider Safety, Production, Maintenance)	1=Important 2=Very Important 3=Critical	Needs Work	Notes/Comments
<ul> <li>Check fuel tank and lines</li> </ul>				
Check fuel level gauge	Could cause engine failure which could create a safety hazard and/or create maintenance problems	2		Explain to trainee the purpose of checking fuel level. If fuel gauge is not operating contact maintenance or supervisor.
Check for fuel leaks		1		
Check for fuel cap		1		Make sure cap is on so fuel won't get contaminated and to maintain fuel pressure. If no cap get one or contact maintenance.
Ensure fuel tank mounts are secure	Could lose tank, which could cause engine failure, create a safety hazard and also create a maintenance and or environmental problems	2		Discuss spill kit procedures
Check right side frame for cracks	•	1		
Check water tank for leaks and ensure it is secured to frame		1		
Check right spray nozzle		1		
<ul> <li>Check right front tire for cracks and seals for leakage, tread separation, side wall and cord damage</li> </ul>	To prevent blowouts, this could cause injury and/or loss of production.	2		Refer to MSHA Tire and Rim Awareness booklet
Visually check rims for cracks and bends	The potential of stored energy release, which could result in injury or loss production.	2		
Visually check lug nuts	Make sure they are not loose, cracked or missing which could result in injury or loss production	2		Make sure they are not loose, cracked or missing.

<ul> <li>Check belts, fan blades and that all guards are in place and secure.</li> </ul>		1	This is a visual inspection only to ensure that all parts and pieces are there. Notify maintenance of any defects.
Check front of truck			
<ul> <li>Check radiator for leaks, damage and build up of obstructions</li> </ul>		1	Mud, paper, anything to restrict the air flow.
<ul> <li>Ensure headlights and parking lights are in place and not broken</li> </ul>		1	
<ul> <li>Ensure ladders, handrails, and steps are in place and secure</li> </ul>	Must maintain safe access and a defective ladder handrails and steps could cause injury, due to slips and falls of person	2	Discuss 3 point contact
<ul> <li>Check tie-rod ends</li> </ul>			
Grab tie rod ends and attempt to move by hand	Defective tie rod ends could cause loss of control of the vehicle, which could cause injury and/or loss of production.	3	If any movement, this is an out of service criteria.
Inspect tie rods for proper lubrication		1	
<ul> <li>Check front struts to ensure they are secured</li> </ul>		1	
<ul> <li>Check front struts for oil leakage</li> </ul>		1	Notify maintenance if leakage has been detected.
Mount truck via ladder		1	Maintain 3-point contact, show video, use best practice cards
Check power steering tank for required level		1	Should be at or above sight glass level mark.
<ul> <li>Check exhaust system for cracks, holes, bends, leaks and ensure it is secure</li> </ul>		1	
Inspect water cannon		1	
<ul> <li>Check the mounting</li> </ul>			
Ensure proper movement			
o Inspect air lines to			
cannon			
Inspect Radiator			

<ul> <li>Ensure all appropriate</li> <li>PPE is worn</li> </ul>		1	
<ul> <li>Crack open ball valve with your foot (to relieve radiator pressure)</li> </ul>	Could cause a serious or disabling injury if remove while hot or under pressured	3	Caution: Explain pressure build up and temperature hazards. Make sure all pressure is removed from the radiator.
Remove radiator cap		1	Components maybe hot
<ul> <li>Check radiator for contamination and fluid level</li> </ul>		1	
<ul><li>Install radiator cap</li><li>Close the ball valve</li></ul>	Engine to overheat causing a loss of production and/or equipment damage	2	To ensure pressure build up
Check engine oil level		1	Marking on dip stick: One side is for engine shut off, and one side if engine is running
<ul> <li>Check fire extinguisher mounted on deck</li> </ul>		1	Explain fire extinguisher procedures
Check handrail for stability		1	
Check and clean right side mirror		1	
Check outside of cab for damaged windows		1	Explain window glass replacement policy
Check right side of cab door handles and hinges		1	
Check catwalk for stability		1	
Check outside rear view mirror		1	
Check driver side door handles and hinges including strap		1	Explain purpose of straps
Conduct in cab inspection			
Inspect the seat		1	Secure, clean, and functional
Check the seat belt condition	Must be maintained to keep you in the safety zone of the cab	2	Clean, frayed edges, operational condition
<ul> <li>Install key in master switch and turn to on position</li> </ul>		1	
Check for unsecured items and cleanliness		1	
Turn on ignition switch to first position		1	Explain ignition switch has two positions and don't want the engine to start at this time

Check emergency steering	May be needed in an emergency, should the main steering fail.	3	
<ul> <li>Flip switch to engage (located left of steering column)</li> </ul>			
<ul> <li>Ensure red light illuminates</li> </ul>			
<ul> <li>Check indicating lights</li> </ul>	Could indicate problems with vehicle while in operation.	2	All lights should work and buzzing noise should be heard
Turn on ignition switch to second position to start engine		1	
<ul> <li>Let engine warm up to build air, oil pressure, and water temperature</li> </ul>	If you don't let air pressure build up you won't have brakes. Low oil pressure could result in engine damage.	2	Air gauge pressure should be 105- 120 lbs. for operating condition. Oil pressure and water temperature must show in the green
<ul> <li>Check fire extinguisher in cab to ensure it is secured and maintained</li> </ul>		1	Explain fire extinguisher procedures
Check mirrors and adjust if necessary		1	
Check CB radio	Communication is essential to avoid collision which could result in damage to equipment and/or personal injury	2	Explain communication channels and radio protocol
Check horn		1	The horn is a foot switch
Check air wipers		1	
Ensure parking brake is applied	If not set, vehicle could go into motion causing injury or damage	2	Show fatalgrams of accidents that have occurred
Put shifting lever in reverse		1	
Check backup alarm by listening for the sound	To warn foot traffic vehicle is in motion and prevent injury or death of personnel on foot	3	Alarm must be audible above the surrounding noise levels. If the alarm can't be heard, notify the supervisor.
<ul> <li>Put shifting lever into neutral after testing backup alarm</li> </ul>		1	
Check heater and/or AC to ensure they are working		1	May need defroster
Turn headlights on		1	
Dismount truck		1	Maintain 3-point contact, show video and use best practice cards
Outside walk-around (Engine Running)			

Starting at the front of the truck		1	Continuously observe the area for any obstacles or hazards around the area of the truck.
Check to ensure the front headlights are working		1	
<ul> <li>Continuously listen for air leaks as you inspect around the truck</li> </ul>		1	If air leaks are detected, do not move truck, contact maintenance
Look for any obvious leaks around and under the truck		1	If any leaks are observed, contact maintenance
Check the tail lights to ensure they are working		1	Notify maintenance of any defects
Fill out the pre-operational checklist	Could lead to disciplinary action	2	Supervisor will collect the checklist sometime during the shift. If there is a hazardous condition that was observed, contact your supervisor before operating truck.

## **Duty 3: Water Truck Loading**

Learner will demonstrate how to safely fill the water truck. Learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. Safe work procedure of loading a water truck 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
Water Truck Fill				
Climb up the loading platform		1		Maintain 3-point contact, show video and use best practice cards
<ul> <li>Look in the hatch to see if the tank needs to be filled</li> </ul>		1		
See "Water the Roads" duty if tank is full		1		
Water loading				
<ul> <li>Ensure that the pipe is directly over the hatch</li> </ul>		1		
Open the gate valve slowly	Pipeline damage could occur causing a loss of production	1		Open the valve slowly because of the hammer affect
Observe the rising water level		1		
Begin to slowly close the gate valve when the level gets approximately ¾ full	Pipeline damage could occur causing a loss of production	1		Close the valve slowly because of the hammer affect
<ul> <li>Close the valve when the water level gets to the bottom of the manhole</li> </ul>		1		Close the valve slowly because of the hammer affect
<ul> <li>Exit the walkway and proceed to the truck</li> </ul>		1		Maintain 3-point contact, show video and use best practice cards
Enter the truck cab		1		
Enter the truck cab		1		

#### **Duty 4: Water the Roads**

Learner will demonstrate how to perform safe work procedures to water the roads. Learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. Safe work procedures for watering the roads include 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
Enter the cab using ladder		1		Use three points of contacts, show video and use best practice cards
Adjust seat		1		
Put on seat belt and adjust if necessary	Must be worn to keep you in the safety zone of the cab in the event of an accident	3		Show fatalgrams
Engage front brake switch located to the left of the steering column, adjacent to the emergency steering switch		1		Explain why the brake is on and instructor should also show marking indicating on and off position.
Engage the PTO		1		Has to be done at low RPM's; if not it could damage pump
Apply foot brake		1		
Disengage parking brake		1		
Select 1 <sup>st</sup> gear		1		When fully loaded, utilize 1 <sup>st</sup> gear only. Shift according to manufacture recommendations.
<ul> <li>Notify personnel that the water truck is leaving the water station (CB radio)</li> </ul>	Failure to do so could result in a collision with another vehicle and result in personal injury or death	3		Explain the reason for communications.
<ul> <li>Look in the mirrors (left and right) to ensure the areas are clear</li> </ul>	Failure to do so could result in personal injury	2		Discuss vehicle blind spots and show video
Look to the left and right of the roadway for oncoming traffic	Failure to do so could result in a collision with another vehicle and result in personal injury or death	3		Discuss fatalgrams
Blow the truck horn three times		1		To alert people that may be around the truck

	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
•	Accelerate slowly in 1 <sup>st</sup> gear		1		Avoid any jerking starts
•	Check foot brake (after truck is in motion)	To prevent an accident because of a runaway truck or the sudden need to stop. Good brakes could prevent bodily injury, death, and/or property damage.	3		Explain proper foot brake procedures. Verify that brakes are operating as properly. Discuss fatalgrams.
•	Release foot brake		1		
•	Accelerate slowly in 1 <sup>st</sup> gear		1		Avoid any jerking starts
•	Continue to accelerate and shift to 2 <sup>nd</sup> gear prior to tachometer getting to the yellow mark	Could cause transmission or engine damage	2		Use manufacture recommendation
•	Continue to shift into the upper gears as above		1		Always maintain a safe speed. Always go down a grade in the same gear that you used to go up.
•	Ask coal yard where they need water		1		
•	Notify yard loader operator that you are approaching area	To prevent collision with end loader and other vehicles operating in the area	2		Important to communicate your location
•	Open water valves		1		Explain that conditions warrant number of valves to be used. The amount and volume of water that is applied is determined by: weather, topography, road traffic conditions i.ehaulage routes. When wetting the black top roads use all three rear bars to wash off the road. In most cases, the roadways that have steep grades must only be spot wet.
•	Remain in radio contact with personnel at all times	Failure to do so could result in a collision with another vehicle and result in personal injury or death	3		Explain the reason for communications.
•	Continue to strategically wet the roads until the truck is empty		1		

•	Proceed to the water station (when truck is empty)		1	
•	Notify the coal yard that you are approaching water station	To prevent collision with end loader and other vehicles operating in the area	2	Important to communicate your location
•	Pull into the coal yard		1	
•	Apply foot brake and come to a complete stop		1	Shift into reverse only when the machine has stopped
•	Look into the mirror for traffic	Prevent collision with other vehicles	2	
•	Look to the left and the right for traffic	Prevent collision with other vehicles	2	
•	Announce on CB radio that you are backing across the road	Inform traffic that you will be in the traffic pattern to prevent collision with other vehicles.	2	
•	Put into reverse		1	
•	Let off the foot brake		1	
•	Accelerate slowly across the road toward the water station		1	
•	Apply foot brake and stop when the rear tires are even with the markings on the ground		1	
•	Put in neutral		1	
•	Set parking brake	To prevent the vehicle from any motion	2	
•	Disengage the PTO	Could cause equipment damage if PTO is not disengaged	3	Could cause equipment damage if PTO is not disengaged
•	Exit the cab		1	Use three points of contacts, show video and use best practice cards
•	Ensure that all PPE is worn		1	
•	Check the condition of the planetary's		1	Put hand near the planetary to check the temperature. Do not touch the planetary because it may be extremely hot!
•	Refer to Water Truck Loading Duty to fill the truck		1	

## **Duty 5: End of Shift Activities**

Learner will demonstrate how to conduct end of shift activities. Learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. A thorough end of shift activity 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
Park the water truck at the water station following the steps in the Water the Roads duty		1		
Ensure that the truck is in neutral		1		
Ensure that the parking brake is applied	To prevent any motion of vehicle which may cause injury or equipment damage	2		
Leave truck idling for at least 5 minutes for cool down		1		Explain cool down procedures
Turn off ignition switch		1		
Turn off master switch		1		Ensure that key stays in the truck
Remove seat belt		1		
Leave note for the next operator if any truck conditions warrants it		1		
Exit Cab		1		Ensure that all appropriate PPE is used. Use three points of contact, show video and use best practice cards
Ensure that the pipe is directly over the hatch		1		
Re-position truck if pipe is not over the hatch		1		
Proceed to the water valve		1		
Turn valve on to fill truck	Hammer effect may occur if the valve is not opened and closed slowly causing damage to the pipe	2		Only fill approximately ¾ full when leaving after day shift and fill to capacity when leaving after night shift. Refer to water filling duties.
Proceed to the field office		1		

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
Turn in all paperwork		1		
Leave mine safely		1		

## **Duty 6: Unusual Events**

Learner will demonstrate what to do when an unusual event occurs. Learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. Procedures to follow when an unusual event has occurred include 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
Tire failure				
Reduce Speed	To safely control and stop movement of vehicle to prevent accident and or damage to the vehicle	2		
Maintain control of the steering wheel	To safely maintain control of vehicle to prevent accident and or damage to the vehicle	2		
Apply Brakes	To safely stop movement of vehicle to prevent accident and or damage to the vehicle	2		Use hand retarder or foot brake to stop as soon as possible
<ul> <li>Safely pull off to the side of the road</li> </ul>		1		
<ul> <li>Contact Supervisor</li> </ul>		1		
Steering Failure				
<ul> <li>Engage the emergency steering switch</li> </ul>	To maintain control of the vehicle to prevent accident and or damage to the vehicle	3		Located on the left side of the steering column (dash mounted)
Reduce speed by letting off of the accelerator	To maintain control of the vehicle to prevent accident and or damage to the vehicle	2		
<ul> <li>Apply brakes</li> </ul>	To safely stop movement of vehicle to prevent accident and or damage to the vehicle	2		Use hand retarder or foot brake to stop as soon as possible
<ul> <li>Safely pull off to the side of the road (if possible)</li> </ul>		1		
<ul><li>Contact Supervisor</li></ul>		1		
Medical Emergency				
Reduce Speed		1		
Maintain control of steering wheel		1		

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
Apply Brakes		1		Use hand retarder or foot brake to stop as soon as possible
<ul> <li>Safely pull off to the side of the road</li> </ul>		1		,
<ul> <li>Call for emergency assistance</li> </ul>	Need to get medical assistance	2		Inform the trainee of the emergency medical procedures
Runaway Truck				Validate the importance of staying in the safety of the cab. Show fatalgrams.
Let off accelerator to reduce speed	Could cause serious injury and/or damage to property	2		
Activate all braking systems	Will enable you to keep in control of the vehicle	2		
<ul> <li>Apply foot brake</li> </ul>		1		
<ul> <li>Apply hand retarder</li> </ul>		1		
<ul> <li>Apply parking brake</li> </ul>		1		Use only as last resort
Locate nearest berm or ditch	Assist in the ability to stop the vehicle	2		
Gradually steer truck into the berm or ditch	If you don't gradually steer the truck into the berm you could roll the truck over	2		Continue to steer to straddle the berm and/or maintain steering into the ditch
Stop the truck as soon as possible	If the truck is not brought to a stop as soon as possible, injury and/or equipment damage may occur	2		
Notify supervisor	Supervisors should be aware of incidents occurring on the property, near misses, serious injuries and damage to property	1		