Company Name:	Equipment/Job Identification: Face Drill Operator
Mine Name:	Type of Equipment:
	Make: Cannon
Date of Analysis:	Model: 833
03/28-30/2006	Year:
	Use:

Pre-Assessment

All MSHA Part 48 requirements must be met including Task Training Company policy requirements and SOPs Task training records must be on file prior to operating any mobile equipment

Duty 1: Start of Shift Activities

Learner will explain the importance of start-of shift activities. The learner will explain each job step, why it is conducted, any associated risk, and how to implement appropriate controls. Start-of-shift activities include the following 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
Conduct self assessment.		1		
Tag in	Failure to tag in and tag out may cause loss of production and/or personal injury due to the blasting schedule. Could be left in the mine.	2		
Punch time clock		1		
Obtain and put on PPE		1		Hard hat, cap lamp, self-rescuer and mine belt, eight inch lace up steel toe boots, safety glasses and ID tag.
Obtain and fill water cooler with water		1		
Walk to production shaft		1		
Ensure the man cage is spotted		1		
Ensure horn is sounded prior to opening		1		
shaft gate				
Open the shaft gate		1		
Open the man cage door		1		
Enter man cage		1		

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
Close the shaft gate		1		
Close man cage door		1		
Ride man cage down to the 900' level after signal is given to the hoist operator		1		
Ensure that horn is sounded prior to		1		
open man cage door				
Open the man cage door		1		
Open shaft gate		1		
Exit man cage		1		
Close man cage door		1		
Close shaft gate		1		
Release the man cage		1		
Enter the air-lock		1		
Close air-lock doors		1		
Open inside air-lock door and exit		1		
Close air lock after last person has exited the air-lock		1		
Walk to transportation		1		
Travel to 1600' level shop		1		
Save lunch in lunch room		1		
Attend pre-shift line up with supervisor	Failure to attend this pre-shift line up with supervisor could reduce production by not knowing location of equipment and/or the drill pattern may not be completed. Safety and/or maintenance information may be missed.	2		
 Location of drill 				
 What to drill in face 				
Where is the next face				
Discuss any maintenance issues				
Ensure the room to be drilled is				
clean and ready to drill				

Duty2: Workplace Inspection

Learner will demonstrate how to safely and efficiently perform a workplace inspection. The learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. Safe and efficient performance of a workplace inspection includes the following 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
Inspect ground conditions for loose scales	Failure to inspect could cause disabling injury or death by loose ground falling on persons. Equipment damage could occur from falling material which would cause production to stop.	3		
Back				
Face				
• Ribs				If any loose ground is found, report it to the supervisor. Communicate with the scale operator about scales to be removed. Back drill out if needed.
Inspect floor for slip trip and fall hazards	Failure to inspect floor could cause disabling injury or death because of slip, trip and fall hazards. Equipment damage could occur from running over large chunks of salt on floor. Running over chunks could cause injury due to flying salt pieces.	3		If any unsafe condition is found, contact supervisor and/or correct unsafe condition(s).
Fill out work place inspection form immediately after work place inspection is completed	Failure to fill out and submit inspection form may cause unsafe conditions to go uncorrected.	1		It is the responsibility of the operator to complete the form. If the form is not completed, the employee would be disciplined.

Duty 3: Conduct Pre-Shift Inspection

Learner will demonstrate how to safely and efficiently perform the pre-shift inspection on an 833 Cannon drill. The learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. Safe and efficient performance of the pre-shift on the 833 Cannon drill includes the following 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
Conduct a general walk around of drill		1		
Look for any unusual/unsafe conditions around and under the drill				
Look for large puddles of fluid on floor, around and under drill				
Check Engine oil		1		
Pull dip stick and ensure proper level				
Check engine coolant level		1		
Open radiator cap				Ensure engine is not hot prior to opening.
Ensure fluid is visible				
Check fuel level		1		
Observe site glass on fuel tank on right rear side of operator cab				
Check hydraulic oil level		1		
Observe site glass on left rear side of operator cab				
Check compressor oil level		1		
 Observe site glass on right rear of chassis 				
Check V-belts		1		
Visually check for wear, cracks and splits				
Check engine compartment guards	Failure to ensure guards are in place could cause person to become entangled in moving machine parts causing disabling injury or death.	3		Refer to company policy/procedure manual on guarding.
Check housekeeping		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
Check for trash and remove if		3=Critical		
necessary				
Check air filters (engine & compressor)		1		
Observe site glass on side of engine compartment				
Check condition of tires		1		
 Check for peeling, chucks missing, and spinning on the rim 				
Check wheel lugs		1		
 Check for tightness 				
 Ensure that all lugs are there 				
Check front & rear jacks & pins	Failure to ensure pin is in place may cause drill to dip while boom is extended which may cause equipment damage, loss of production and personal injury.	2		
Check to ensure all pins are in place and properly retained				
 Check for hydraulic leaks 				
Check water hoses		1		
 Look for wetness and cracks around the hose 				
Check hydraulic hoses	Failure to check hydraulic hoses for leaks could result in spraying hydraulic fluid contacting hot components of engine causing a fire which would result in equipment damage, stop production and disabling injury and or death.	3		
Look for wetness and cracks around the hose and fittings				
Check boom swing cylinders & pins		1		
Check to ensure all pins are in place and properly retained Check for hydraulic leaks				
Check feed tilt cylinders & pins		1		

Job Steps	Importance Narrative	Importance Ranking	Satisfactory	Procedures/Risk Resolution/ Notes/Comments
	(Consider Safety, Production, Maintenance)	1=Important 2=Very Important 3=Critical	Needs Work	Notes/Comments
 Check to assure all pins are in place and properly retained 				
Check for hydraulic leaks				
Check boom lift cylinder & pins		1		
Check to ensure all pins are in place and are properly retained				
 Check for hydraulic leaks 				
Check steering cylinders and pins		1		
Check to ensure all pins are in place and are properly retained				
 Check for hydraulic leaks 				
Grease water swivel		1		
 Obtain grease gun from cab (behind operator seat) 				
 Place grease hose on grease zerk 				Located on top of boom structure.
Pump grease gun 5-10 squirts				Damage could occur to seal due to over greasing.
Check water swivel		1		
 Check for water leaks 				
 Check for loose bolts and tightness of lock nuts 				
Grease boom & sheaves		1		Follow operators manual recommend procedures for greasing. Maximum five squirts.
Check feed cable		1		
Look for looseness, frays, and mis-alignment				
Check re-track cable		1		
 Look for looseness, frays, and mis-alignment 				
Check steel guides • Look for wear, loose bolts, and mis-alignment.		1		

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
Check front cable sheaves		1		
Look for wear and mis-alignment				
Check rear cable sheaves		1		
 Look for wear and mis-alignment 				
Check fire extinguisher	Failure to check fire extinguisher may cause disabling injury or death from fire, and equipment damage from faulty equipment not working when needed. Production would be stopped.	3		Underground mine fires cause carbon monoxide gas, as well as, an oxygen deficient atmosphere which can be explosive with the right mixture of oxygen. At least one fire fighting system must be operable at all times. If defects are found on both systems, tag-out drill and immediately report to supervisor.
Check gauge to ensure extinguisher is properly charged				
 Ensure pin is in place and is secure 				
Check fire suppression cartridge & ring pin	Failure to check fire suppression may cause disabling injury or death from fire, and equipment damage from faulty equipment not working when needed. Production would be stopped.	3		Underground mine fires cause carbon monoxide gas, as well as, an oxygen deficient atmosphere which can be explosive with the right mixture of oxygen.
Check gauge to ensure extinguisher is properly charged				
Ensure pin is in place and is secure				
Ensure LED indicator is functioning and green light is on				
Ensure drill feed lever is in neutral position				
Start engine		1		
Enter cab				
Push by pass button				
Turn key clock wise				

Job Steps	Importance Narrative	Importance Ranking	Satisfactory or	Procedures/Risk Resolution/
	(Consider Safety, Production, Maintenance)	1=Important 2=Very Important 3=Critical	Needs Work	Notes/Comments
Ensure that murphy switch is operable	Failure to ensure that the switch is operable could result in pre-mature engine failure.	2		
 Ensure red indicator light is working 				If light is not working shut down engine and properly tag out. Notify supervisor.
Listen for working audible alarm				If alarm is not heard shut down engine and properly tag out. Notify supervisor.
Check voltage gauge		1		·
 Ensure gauge indicator is in green 				
Check drill and tram lights		1		
 Flip toggle switch to on position 				
 Ensure all lights are on 				
Check windshield		1		
 Check for cracks 				
 Ensure windshield is properly within the seal 				
Check for wiper operation		1		
Check engine speed control		1		
 Flip toggle switch to full position to ensure engine goes to high RPM 				
Check tram alarm	Failure to ensure that tram alarm is working could result of high probability of causing an accident resulting in personal injury. Congested working face.	2		
Release parking brakes				
Listen for alarm				
Check park brakes		1		
Report any safety defects and/or unusual conditions to the supervisor and immediately shut down and tag out equipment	Failure to shut down and tag equipment could result in disabling injury and or death due to the operation of defective equipment. Failure to tag out equipment when defects are noted would result in disciplinary action.	3		

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
Fill out pre-shift inspection form immediately after conducting pre-shift inspection	Failure to fill out and submit pre-shift form may cause unsafe conditions to go uncorrected or addressed.	1		It is the responsibility of the operator to complete the form. If the form is not completed the employee would be disciplined.

Duty 4: Drill Operation

Learner will demonstrate how to safely and efficiently perform the drill operation. The learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. Safe and efficient performance of the drill operation includes the following 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
Start Engine		1		
Start compressor		1		
 Flip toggle switch to on position 				
Start rotation		1		
 Flip toggle switch to forward rotation to left 				
Turn on water		1		Ball valve located in cab
Engage air		1		Valve located on top of water valve
Push feed tilt lever down		1		Drilling the correct angle will ensure that the face will pull the maximum amount
Ensure the correct angle of minus 18 degrees is maintained		1		
Position boom on the first bottom hole on fifth line from right rib		1		To maintain the optimal efficiency of the drilling operation, it is important to follow the drilling sequence listed in the job steps that follow. If obstructions and/or sandstone is encountered, the drill hole location may have to be moved over a few inches. Start drilling and make setup moves from right to left to stay ahead of the cutter.
Push boom swing lever down		1		
Ensure the steel stays straight with the face (perpendicular)		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
Release boom swing lever when lined over the bottom left hole to be drilled		1		
Push feed extend lever down until it touches the face		1		
Push feed lever forward to begin drilling Observe feed pressure gauge	Failure to ensure that the pressure stays within 400 PSI may cause equipment damage and shorten equipment efficiency. Loss of production.	2		Pressure should read 400 PSI maximum. If pressure exceeds 400 psi, adjust feed pressure according to manufactures specification. Pressure chart is posted in cab.
Observe shavings for dust control	A wet hole may effect production by reducing the effectiveness of the blasting agent.	2		If area becomes too dusty add water accordingly. If shavings become to wet decrease water.
Listen and look for feed retract		1		This would indicate the hole is completely drilled.
Pull feed extension lever back to retract the feed extension		1		
Position boom to bottom hole on third line from right rib		1		
Pull the boom swing lever to swing boom to the right				
Ensure that the boom is lined up with the hole then release the lever				To minus 18 degrees.
Ensure the correct angle of minus 18 degrees is maintained				
Continue to position boom and drill the remaining bottom holes until you reach the right rib		1		
Pull boom lift lever up to raise boom until marker on chain is even with bottom hole on right rib		1		

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking 1=Important 2=Very Important	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
	,	3=Critical		
Set boom angle to minus 16 degrees		1		Drilling the correct angle will ensure that the face will pull the maximum amount
Pull feed tilt lever up				
Release lever when minus 16 degrees is reached				
Position boom to the second hole on the second row on the right rib		1		
Push feed extend lever until boom contacts the face		1		
Ensure marker on chain is even with bottom hole on right rib		1		
Proceed using the procedures to drill holes as specified above		1		To maintain the optimal efficiency of the drilling operation it is important to follow the provided drilling sequence listed in the job steps that follow.
Continue to drill holes up the right rib using drill/angle pattern chart located in cab		1		Each row of holes requires different angle. The angle is as follow from bottom up. Minus 18, Minus 16, Minus 12, Minus 6, Minus 0 and plus 3 degrees.
Position boom to number two hole on the second row second hole from right rib using the levers and procedures outlined above		1		
Drill the number two hole on the second row of right rib using the levers and procedures outlined above		1		
Continue drilling holes according to pattern from right to left /left to right working up until setup is completed		1		
Shut off rotation		1		
Return boom to center	Failure to return the boom to the center may cause the drill to tip over causing equipment damage and personal injury when jacks are lifted. Loss of production.	2		To prevent drill from tipping over.

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
Push boom lift lever down until boom is level with operators cab		3-Offical		
Lift on the boom swing lever to swing boom to right until boom is centered with arrow				
Lift out riggers		1		Ensure that all outriggers are lowered/raised one at time. The levers are located on left rear side of operator seat.
 Pull lever toward operator to lift out rigger (there are four different levers that control all outriggers). 				
Release park brakes		1		
Tram drill to next setup		1		
 Stand up in the cab 		1		
Ensure that area is clear before moving to next set up	Failure to ensure that the tramming area is clear of equipment and/or persons may cause personal injury and equipment damage. Damage to trailing cable. Cutter and drill collision may occur.	2		If the cutter is in the room, make sure that you don't back over the cutter cable.
Push tram lever forward and to the right to steer drill away from face and toward the center of room approximately 50 feet away from face		1		
Release lever		1		
Pull lever to forward position to tram drill to center of next setup		1		
Steer drill and place boom approximately 3 feet away from face	If you are too far away from the face, the boom may not reach the face when it's extended causing bent steel and shallow holes. Loss of production.	2		

Job Steps	Importance Narrative	Importance Ranking	Satisfactory or	Procedures/Risk Resolution/ Notes/Comments
	(Consider Safety, Production, Maintenance)	1=Important 2=Very Important 3=Critical	Needs Work	Notes/Comments
Release tram lever		1		
 Apply parking brakes 		1		
Exit cab		1		
Walk to rear of drill approximately 30 feet		1		
 Visually ensure that the drill is square to the face 		1		If drill is not square to the face reposition drill accordingly.
Drill holes starting at the bottom left and continue left to right/ right to left, using drill pattern until setup is completed		1		Using drilling controls and procedures as outlined above.
Tram drill to third setup		1		Use tram procedures outlined above.
Follow same tram and drill procedure to complete third set-up	Failure to follow the procedures outlined above may cause equipment damage, loss of production, and/or personal injury.	2		
Tram to final set along left rib		1		
Begin drilling the bottom right hole on the fifth line left of center		1		Follow drilling procedures as previously outlined.
Drill right to left until last hole against left rib is completed		1		
Drill holes up left rib until last hole at back is completed according to drill/ angle pattern specification		1		According to drill / angle patter specification.
Set up boom and begin drilling second hole second row		1		
Continue drilling left to right/right to left until last hole is completed.		1		According to drill / angle patter specification.
Turn off rotation		1		
Turn off air		1		
Turn off water		1		
Center the boom following the same procedures as described above	Failure to return the boom to the center may cause the drill to tip over causing equipment damage and personal injury when jacks are lifted. Loss of production.	2		To prevent drill from tipping over
Prepare drill to tram to next room		1		

Duty 5: Changing Drill Bits

Learner will demonstrate how to safely and efficiently change drill bits. The learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. Safe and efficient performance when changing drill bits includes the following 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
Lower boom to approximately 4' above		1		
the floor				
Shut drill off		1		
Tag out drill	Failure to tag out the drill prior to changing the bit may cause someone to be entangled in the rotation of the drill steel if the drill was inadvertently started causing disabling injuries and/or death.	3		Lock out tag out according to company policy.
 Turn off master key switch located by the door of operator cab next to the second step 				
 Remove key from master switch and place key in drillers pocket 				
 Fill out tag and place on door 				
Obtain hammer and new bit from tool box		1		Located at right rear fender.
Don full face shield	Failure to put on face shield when hammering on steel may cause disabling injuries due to flying pieces of metal.	3		
Hit bit with hammer to loosen bit		1		Proper PPE as required per company policy.
Remove bit (unscrew)		1		
Apply never seize to new bit		1		
Install new bit and hand tighten		1		
Place old bit in bucket		1		Bucket is located on drill inside cab.
Place hammer in tool box		1		
Remove tag from door		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
Replace master key		1		
Turn master key to on position		1		

Duty 6: Changing Drill Steel

Learner will demonstrate how to safely and efficiently change drill steel. The learner will also explain the job steps, why they are conducted, any associated risk, and how to implement appropriate controls. Safe and efficient changing of drill steel 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
Lower boom to approximately 4' above floor		1		
Notify supervisor that the steel needs to be replaced		1		
Obtain drill steel		1		
Tag out drill	Failure to tag out the drill prior to changing the drill steel may cause someone to be entangled in the rotation of the drill steel if the drill was inadvertently started causing disabling injuries and/or death.	3		
Turn off master key switch located by the door of operator cab next to the second step				
 Remove key from master switch and place key in drillers pocket 				
 Fill out tag and place on door 				Lock out tag out according to company policy.
Obtain two 18 inch pipe wrenches from tool box		1		Tool box located on right rear of drill.
Place one pipe wrench on steel adaptor		1		To prevent rotation of adaptor.
Place second pipe wrench on the steel		1		
Pull second pipe wrench down to break connection		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
Remove pipe wrenches after the connection is broken		1		
Unscrew steel by hand and remove from steel guides		1		
Place old steel in truck	Failure to discard the used steel properly may cause the steel to be inadvertently picked up and entered into the mining cycle causing equipment damage and a severe loss of production.	3		History at this mine shows that steel has entered the mining cycle in the past causing shut downs and loss of production. May put maintenance personnel in dangerous positions to repair or remove the steel.
Place new steel in guide		1		
Apply never seize to the threads		1		
Hand screw steel into adaptor until hand tight		1		
Install new bit into steel		1		Hand tighten new bit into steel.
Place tools back in tool box		1		
Remove tag from door		1		
Replace master key		1		
Turn master key to the on position		1		

Duty 7: End of Shift Activities

Learner will demonstrate how to safely and efficiently perform end of shift activities. The learner will also explain the job steps, why they are conducted, any associated risk, and how to implement appropriate controls. Safe and efficient end of shift activities 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
Ensure drill steel is not left in the drill hole		1		
Ensure air, water and rotation are off		1		
Ensure drill is shut down		1		Equipment should not be left unattended when it is running.
Leave job site approximately 45 minutes prior to end of shift and travel to lunch room		1		
Communicate with supervisor and turn in pre-shift and work place inspection reports	Failure to submit pre-shift form may cause unsafe conditions to go uncorrected.	1		Communicate to supervisor the drilling progress that was completed.
Leave lunch room approximately 30 minutes prior to end of shift		1		
Travel to 900' level production shaft		1		
Wait until supervisor calls the man cage (approximately 2-3 minutes)		1		
Enter the air- lock		1		
Close air-lock doors		1		
Open inside air-lock door and exit		1		
Close air lock after last person has exited the air-lock		1		
Ensure the man cage is spotted		1		
Ensure horn is sounded prior to opening shaft gate		1		
Open shaft gate				
Open man cage door		1		
Enter man cage		1		
Close shaft gate		1		
Close man cage door		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
Ride man cage to surface after signal is given to the hoist operator		1		
Ensure that horn is sounded prior to open man cage door		1		
Open the man cage door		1		
Open shaft gate		1		
Exit man cage		1		
Close man cage door		1		
Close the shaft gate		1		
Release the man cage		1		
Walk to the change room		1		
Punch out time clock		1		
Save mine light and place on charger		1		
Tag out	Failure to tag in and tag out may cause loss of production and/or personal injury due to the blasting schedule. Could be left in the mine.	2		
Replace PPE in personal locker		1		
Walk to vehicle		1		