

Company Name:	Equipment/Job Identification: Crusher Operator Type of Equipment: Stationary Primary Make: Model: Year: Use:
Mine Name:	
Date of Analysis:	

Pre-Assessment

- **List pre-requisites here**
 - Appropriate Part 46 Training

Duty 1: Pre-shift/Start up

Learner will demonstrate how to conduct a safe and thorough pre-operational inspection. Learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. A thorough pre-operational inspection includes the following job steps:

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
		1=Important 2=Very Important 3=Critical		
Open main gate		1		
Keep all travel ways and working surfaces free of slip, trip and fall hazards	Large number of lost-time and serious injuries as a result of slip, trip and fall accidents	2		
Open maintenance shop		1		
Obtain/wear PPE		2		
• Wear hard hat	Minimize risk for personal injury	2		Company policy
• Wear safety shoes	Minimize risk for personal injury	2		Company policy
• Wear ear plugs where appropriate	Minimize risk for personal injury	2		Company policy
• Wear safety glasses	Minimize risk for personal injury	2		Company policy
• Wear fall protection (when necessary)	Minimize risk for serious and/or fatal personal injury	3		Company policy

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Review check-sheet from previous shift	Gives operator an overview of any problems occurring on previous shift	2		
Conduct safety check on site truck	Could reduce accidents and injury; reduce damage to equipment	2		Company policy Take truck out of service if safety defects are found
• Check oil	Could reduce damage to equipment	2		
• Check water	Could reduce damage to equipment	2		
• Check lights	Could reduce accidents and injury; reduce damage to equipment	2		
• Check back-up alarm	Could reduce accidents and injury	2		
• Check seat belts	Prevent personal injury; reduce seriousness of injuries	3		
• Check horn	Could reduce accidents and injury	2		
• Check brakes	Prevent personal injury	3		
• Complete inspection report and turn in to foreman	Could reduce accidents and prevent personal injury; preventive maintenance of equipment	2		
Always check blind spots prior to engaging		1		
Drive truck to screen house		1		
Conduct safety check on screen/screen house	Reduce equipment damage, ensure equipment is ready to operate,	2		Report any immediate dangers to life/health immediately
• Travel to fourth floor (steps/ladder)		1		Face ladders when ascending/descending Maintain 3-point contact
• Check oil level at gear housing	Could extend life of equipment; could prevent production downtime	2		
• Check oil in screen on third floor	Could extend life of equipment; could prevent production downtime	2		
• Check screen on third floor		1		
○ Check for holes which don't make spec		1		
• 4 inch		1		
• 3 inch		1		
• modified		1		Require screen changes 2RC, 3-inch modified, 2A modified
○ Check guard on motor	Prevent personal injury	2		

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
• Travel to second floor		1		
• Check crusher		1		
○ Check adjustment on 44 crusher, if necessary		1		Look at oversize, if over 4 inches, adjust manually (aprox. 20-30 clicks)
○ Check chute going into cone crusher for blockage		1		
• If blocked, open cone cover at 2 nd floor panel		1		
• Take bar with you to knock debris down		1		Pass bar to each other – don't climb ladder with bar
• Stand on crusher box		1		Determine if fall protection is necessary
• Remove debris with bar		1		
• Close cone cover		1		
○ Check guard on crusher		1		In place, no holes
○ Check oil in lube pump		1		
• Travel to first floor		1		
• Conduct visual exam of tail pulleys		1		
○ Look for rocks		1		
○ Check guards		1		In place
○ Check belts for wear, tears, clips missing		1		
• Lock out oversize belt, crusher, and modified stacker at the panel	Prevent personal injuries	2		
• Check under crusher for debris	Removing debris could prevent large rocks from falling on persons	2		Metal, large rocks
• Check skirt boards		1		
• Check oil in crusher		1		
Travel to modified stacker		1		Report any immediate dangers to life/health immediately

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
		1=Important 2=Very Important 3=Critical		
<ul style="list-style-type: none"> Clean underneath tail by removing spillage with shovel 		1		
<ul style="list-style-type: none"> Climb ladder above modified stacker to catwalk 		1		
<ul style="list-style-type: none"> Remove cover 		1		
<ul style="list-style-type: none"> Check for blockage 		1		
<ul style="list-style-type: none"> If blocked, remove blockage with bar 		1		Bar stays on the catwalk
<ul style="list-style-type: none"> Replace cover 		1		
Report any defects found verbally				Electrical, Other
<ul style="list-style-type: none"> Ensure all defects are corrected before starting up screen and crusher 	Prevent potential for personal injury; reduce chance for damage to equipment; reduce production downtime	2		
Travel back to panel room		1		
Start up the screen and crusher		1		
<ul style="list-style-type: none"> Push the button for the hydraulic pump for the crusher 		1		
<ul style="list-style-type: none"> Pull the button for the horn to blow 		1		After horn blows, everything starts up automatically
Travel by truck to jaw		1		Report any immediate dangers to life/health immediately
<ul style="list-style-type: none"> Pull up on ramp of hopper 		1		
<ul style="list-style-type: none"> Look into hopper at grizzly bars and side plates <ul style="list-style-type: none"> Can be visually checked from top 		1		
<ul style="list-style-type: none"> Proceed across catwalk to crusher shack 		1		
<ul style="list-style-type: none"> Change numbers in the belt scale 		1		
<ul style="list-style-type: none"> Zero out the scale 		1		
<ul style="list-style-type: none"> Make jaw adjustment prior to starting up 		1		
<ul style="list-style-type: none"> Turn pump on for primary crusher 		1		

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
• Start up primary crusher in order to grease the bearings		1		Warning horn should sound before start up
• Check the 48" belt		1		
o Check return rollers		1		
• Check troughing rollers		1		
• Check the box for the 42" belt for blockage		1		
• Check metal magnet for debris		1		
• Go upstairs to crusher shack and turn on 48" belt		1		Warning horn should sound before start up
• Throw breaker for the feeder		1		
• Check oil in the hammer		1		
• Conduct visual exam of the hammer		1		Check for pins coming out
Conduct visual exam of belts		1		Check for tears, clips missing and for wear
Complete daily maintenance checklist for each plant		1		

Duty 2: Production

Learner will demonstrate how to operate equipment in a safe and efficient manner for the purpose of producing material. Learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. Safe and efficient equipment operation and material production includes the following job steps:

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Notify/signal driver when it is okay to dump	Prevent personal injury	2		Repeat for each load
Dump material into the feeder		1		

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Start up the feeder		1		
<ul style="list-style-type: none"> • Regulate power setting as necessary with dial 		1		Dial is normally set between 7-8
<ul style="list-style-type: none"> ○ Keep the primary choked with material 		1		
<ul style="list-style-type: none"> ○ Make visual check for oversized (shot rock) materials 		1		
<ul style="list-style-type: none"> <ul style="list-style-type: none"> • Break oversized materials (shot rock) with hammer 		1		
<ul style="list-style-type: none"> ○ Adjust the dial as material drops into jaw crusher 		1		Lower the dial as load goes down
Turn water on to entire plant for production		1		Flip toggle switches when starting feeder (simultaneously)
Run the material into primary crusher (C110) and onto 48" belt		1		
Check to ensure materials are flowing into box onto 42" belt		1		
Check belt scale in the crusher shack for tonnage per hour		1		Should not run more than 800 ton per hour up the belt If rate exceeds 800 ton per hour, adjust power dial down as necessary Prevents overflow
Check cameras to make sure you have flow of materials		1		6 X 16 screen 44 crusher
Check to make sure you have flow of materials throughout (belts/stackers)		1		3", 4" and modified go onto piles Screen oversize goes into 44 crusher and out to stockpile

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
		1=Important 2=Very Important 3=Critical		
Move stackers when needed (pile location and elevation)		1		3 on plant C and 1 at top (modified stacker) Plant operators will conduct visual from shack or loader operators will notify operator if stackers need to be moved
Have loader operator move 3" and 4" materials to stockpiles		1		
Observe for spillage		1		
<ul style="list-style-type: none"> Shut down and lock out belt if spillage needs to be cleaned up 	Prevent personal injury; reduce production downtime	2		Major clean up only during 1 st shift; routine/minor clean up done by 2 nd shift
Flip plate from 2a to 3a		1		
<ul style="list-style-type: none"> Lock out and tag out screen 	Prevent personal injury; prevent material from striking persons	3		
<ul style="list-style-type: none"> Go upstairs and roll away the chute 		1		
<ul style="list-style-type: none"> Get into the 3 chute and get a hold of the plate and flip it by hand 	Prevent personal injury due to pinch points in flipping plate by hand	2		Caution employees to have enough personnel available to do the job (at least 2 persons, maybe 3)
<ul style="list-style-type: none"> Shut the chute and roll back 		1		
<ul style="list-style-type: none"> Remove lock and tag 		1		
Change to rip-rap		1		
<ul style="list-style-type: none"> Lock and tag out screen and 44 crusher 	Prevent personal injury; prevent material from striking persons; prevent injury or death from unintended startup	3		
<ul style="list-style-type: none"> Obtain slings and clevises 		1		Inspect rigging material for wear, etc. prior to using
<ul style="list-style-type: none"> Attach to crane and chute of 44 crusher 		1		
<ul style="list-style-type: none"> Unbolt chute and lift with crane and place chute on floor 		1		
<ul style="list-style-type: none"> Get into chute of the oversize and dig around the plates that need to be removed (3 plates) 		1		
<ul style="list-style-type: none"> Once uncovered, unbolt and lift out by hand and place on floor 		1		

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
<ul style="list-style-type: none"> Attach rigging to cover plate and using crane, place plate on hole where chute was and bolt plate to the wall 		1		
<ul style="list-style-type: none"> Remove rigging and move crane 		1		
<ul style="list-style-type: none"> Remove lock and tag to screen 		1		
<ul style="list-style-type: none"> Leave 44 crusher locked and tagged out 		1		Crusher is already by-passed
<ul style="list-style-type: none"> Clean up work area 		1		
Correct belt slippage	Prevent belt from burning; affects production	2		
<ul style="list-style-type: none"> Lock and tag out 	Zero potential for unexpected movement	3		
<ul style="list-style-type: none"> Shovel off belt 		1		
<ul style="list-style-type: none"> Remove lock and tag 		1		
<ul style="list-style-type: none"> Start up belt and spray belt dressing at the same time 		1		Stand back from belt when spraying belt dressing Stand on catwalk and spray through the guard
Start end-of-shift shutdown		1		
<ul style="list-style-type: none"> Stop feeding 		1		
<ul style="list-style-type: none"> Allow material to run through entire system 		1		
<ul style="list-style-type: none"> Turn water off once belts are empty 		1		
<ul style="list-style-type: none"> Press all the off switches 		1		3 in shack (primary crusher, 48 and feeder) 2 (pump to 44 and off switch)

Duty 3: Maintenance

Learner will demonstrate proper procedures for preventative maintenance and repair and replacement of necessary components. Learner will also demonstrate ability to identify conditions requiring attention. Learner will explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. Proper procedures include the following job steps:

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
		1=Important 2=Very Important 3=Critical		
Lock and tag out all equipment prior to performing maintenance and repairs	Prevent personal injuries; zero potential for unexpected startup of equipment	3		Company Policy
Lubricate equipment		1		
• Conduct weekly (Saturday)		1		
○ Grease four grease fittings on 44 crusher		1		
○ Check and fill lube tank on 44 crusher		1		
○ Check and fill hydraulic tank on 44 crusher		1		
○ Check and fill oil in feeder		1		
○ Check and fill hydraulic tank on hammer		1		
○ Check and fill lube tank on C110 crusher		1		
○ Grease head and tail pulleys		1		
Check wear plates daily		1		Several in feeder Chutes Replace if necessary
Check bolts and feeder plates daily		1		Replace if necessary
Inspect rollers and belts weekly (Saturday)		1		
• Replace rollers (if necessary)		1		
○ Lock and tag out belts prior to replacing rollers	Zero potential for unexpected startup Prevent personal injury	3		Company Policy
○ Obtain necessary tools		1		Come-a-long, hammer, pry bar

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
○ Attach come-a-long to frame of conveyor to take the tension off the belt/roller		1		Depends on belt (gravity take-ups)
○ Take pry bar and hammer and pry/hammer until it comes out of the frame		1		Must wear eye protection
○ Take roller and pop it right in the frame		1		
• Clip belts (if necessary)		1		
○ Obtain tools		1		Bucket of clips, hole punch/cutter, rill, extension cord, tightener, seam tape, template for punching holes, 2 clamps and 2 come-a-longs, utility knife, pen, square, tape measure, hammer, and backer board
○ Remove grease from tail pulley when doing full splice		1		
○ Attach come-a-long to belt to relieve tension		1		
○ Make splice/repairs to belt		1		
○ Release come-a-longs		1		
○ Remove board		1		
○ Remove belt clamps		1		
○ Re-adjust belt tension by adding grease		1		
○ Remove lock and tag and start belt to make final adjustments		1		
• Change belts		1		

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
		1=Important 2=Very Important 3=Critical		
○ Obtain tools/equipment		1		Bucket of clips, hole punch/cutter, drill, extension cord, tightener, seam tape, template for punching holes, 2 clamps and 2 come-a-longs, utility knife, pen square, tape measure, hammer, backer board, belt material, slings, clevises, crane, bar, chains, tag line, rope, clamp, vehicle
○ Remove grease from tail pulley when doing full splice		1		
○ Pull the new belt on		1		
▪ Attach clamps and come-a-longs		1		
▪ Pull the belt tight		1		
▪ Square it off		1		
▪ Cut the belt		1		
▪ Use template to drill holes through the belt		1		
▪ Remove template and put clips in		1		
▪ Run the tape through		1		
▪ Tighten the clips down		1		
▪ Break off the ends of clips with bar		1		
▪ Remove board		1		
▪ Remove clamps and come-a-longs		1		
▪ Add tension to the tail		1		

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
<ul style="list-style-type: none"> ▪ Remove lock and tag 		1		
<ul style="list-style-type: none"> ▪ Grease tail to take up tension 		1		
<ul style="list-style-type: none"> ▪ Run and train 	Belt could rip if not trained correctly; could result in downtime	2		Make final adjustments
Change screens (when necessary)		1		
<ul style="list-style-type: none"> • Obtain necessary tools 		1		Hammer Pry bar Come-a-long for the 4 inch screens Lubrication (WD40)
<ul style="list-style-type: none"> • Obtain help (takes at least two people) 		1		Caution employees on physical strain
<ul style="list-style-type: none"> • Open roll away chute 		1		
<ul style="list-style-type: none"> • Crawl inside to screens 		1		
<ul style="list-style-type: none"> • Use pry bar and hammer to remove the screens 		1		Use come-a-long to remove the 4" screen
<ul style="list-style-type: none"> • Lubricate screens and channels 		1		
<ul style="list-style-type: none"> • Tap screens in with hammer to full stop 		1		Tap in dowel pins for 4" screens
<ul style="list-style-type: none"> • Manually raise and lower screens from catwalk 		1		
Replace steps in grizzly chute	Failure could result in downtime	2		
<ul style="list-style-type: none"> • Dig out grizzly chute 		1		
<ul style="list-style-type: none"> ○ Obtain tools 		1		Hammer Pry bar
<ul style="list-style-type: none"> ○ Lift door up by hand to remove 		1		
<ul style="list-style-type: none"> ○ Use hammer and pry bar to bar down dirt 		1		
<ul style="list-style-type: none"> • Obtain torch/welding equipment 		1		Chipping hammer, rods, wire brush, grinder, grinding shield, tape measure
<ul style="list-style-type: none"> • Wear personal protective equipment 	Prevent personal injury	2		Welding gloves, welding helmet, and welding mask
<ul style="list-style-type: none"> • Cut out old steps 		1		
<ul style="list-style-type: none"> • Weld in new steps 		1		
<ul style="list-style-type: none"> • Remove old materials 		1		

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
• Replace door		1		
Train the existing belt		1		Determined by belt type
• By grease		1		Grease tail pulley
• By wrench		1		Wrenching on tail pulley
• By hammer		1		Hammering on trough rollers or return rollers

Duty 4: Rebuild 44 crusher

Learner will demonstrate how to conduct a safe and thorough rebuild of the 44 crusher. Learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. A safe and thorough rebuild of the 44 crusher includes the following job steps:

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Lock and tag out	Zero potential for unexpected startup	3		
Obtain tools/equipment		1		Ratchet, sockets, wrenches, slings, clevises, forklift, hammer, pry bar, torch, welder/rods,
Remove chute		1		
• Attach sling with clevises	Prevent lift failure and resulting damage to persons or equipment	2		Inspect rigging for wear, etc.
• Hook to the crane		1		
• Remove bolts and lift		1		
• Place on floor		1		
Remove hopper		1		
• Attach to crane with slings		1		
• Lift out and place on ground		1		
Attach bolt extensions to upper frame of crusher		1		
Turn hydraulic pump on and wind it out		1		

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Hook upper frame of crusher with concave to crane with eye bolts and lift out		1		
Cut the cap off of the mantle by torching off the bolts		1		
Remove the cap		1		
Torch the torch ring off of the mantle	Could result in equipment damage if not done properly	2		
<ul style="list-style-type: none"> Wear PPE 	Use PPE to prevent personal injury	2		Requires shield, mask and burning gloves
Wind the nut off		1		
Use crane with sling to lift nut out and place on floor		1		
Weld two lugs on mantle	Could result in personal injury and equipment damage if not done properly	2		
<ul style="list-style-type: none"> Wear PPE 	Use PPE to prevent personal injury	2		Requires helmet and burning gloves
Use two slings and two clevises to connect to the lugs and lift mantle to outside		1		
Clean mantle piece using grinder with wire wheel	Cleaning the mantle helps backing adhere better Prevents additional downtime and cost of redoing backing Wearing PPE prevents personal injury	2		Caution employee on use of PPE (mask, shield, gloves)
Cut off the four ears of the concave	Could damage equipment if done incorrectly Wearing PPE prevents personal injury	2		Caution employee on use of PPE (mask, shield, gloves)
Knock the concave out of the frame		1		
Clean concave up using grinder with wire wheel	Cleaning the concave helps backing adhere better Prevents additional downtime and cost of redoing backing Wearing PPE prevents personal injury	2		Caution employee on use of PPE (mask, shield, gloves)
Level out concave	Prevents additional downtime to redo	2		Place level across top of concave
Caulk bottom lip of concave	Prevents additional downtime to redo	2		
Oil inside of frame using rag	Prevents additional downtime to redo	2		

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Take frame and set it down on top of concave		1		
Hammer wedges underneath ears of concave and weld fast to frame and ears	Prevents equipment damage and additional downtime	2		Caution employee on use of PPE (helmet, gloves)
Pour Nordbak (backing material) into void area between concave and frame		1		Review/discuss MSDS Discuss proper mix of backing material
Weld ears on to mantle	Prevents equipment damage and additional downtime	2		Caution employee on use of PPE (helmet, gloves)
Oil and caulk cone before placing mantle	Prevents additional downtime required to redo	2		
Place mantle using crane, clevises and slings		1		
Place torch ring on mantle		1		
Use the crane to bring nut down to you and then spin on by hand		1		
Use tee wrench/plate to tap and ensure tightness		1		
Weld torch ring to the mantle and the nut	Prevents additional downtime required to redo	2		Caution employee on use of PPE (helmet, gloves)
Place cap on and bolt down		1		
Pour Nordbak (backing material) between mantle and main shaft		1		Review/discuss MSDS Discuss proper mix of backing material
Attach four slings to hoist upper frame up with crane		1		Inspect rigging for wear, etc.
Set upper frame down in main frame		1		
Turn hydraulic pump on		1		
Spin it down into main frame until you reach proper crush dimension		1		
Remove three extensions		1		
Attach two slings, two clevises and two eye bolts to the hopper and lift it up into upper frame		1		Inspect rigging for wear, etc.
Bolt to upper frame		1		
Remove rigging		1		

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Attach two slings and two clevises to the chute and lift up onto the main oversize chute		1		Inspect rigging for wear, etc.
Bolt chute to main oversize chute		1		
Release rigging from chute		1		
Clean up tools		1		

Duty 5: Rebuild C110

Learner will demonstrate how to conduct a safe and thorough rebuild of the C110 crusher. Learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. A safe and thorough rebuild of the C110 crusher includes the following job steps:

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Lock and tag out the C110	Zero potential for unexpected startup	3		
Lock and tag out C1B	Zero potential for unexpected startup	3		
Open jaw		1		
Release pressure on hydraulics		1		
Lock and tag out hydraulics at the panel	Zero potential for unexpected movement	3		
Loosen nuts on wedges		1		
Place ladder inside crusher		1		
Have one person stand inside crusher on ladder and another person goes outside crusher and beats the bolts inward loosening the wedges on the stationary		1		
Push the wedges to the inside of crusher		1		
Remove wedges		1		
Weld the eye onto the dies to attach rigging	Prevent additional downtime to redo	2		Caution employee to wear PPE (helmet and gloves)

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Lift the stationary plate with a crane	Prevent damage to equipment	2		Inspect rigging for wear, etc.
Have one person outside of the crusher loosen the bolts		1		
Have one person stand inside crusher on ladder and another person goes outside crusher and beats the bolts inward loosening the wedges on the swing jaw		1		
Weld the eye to the swing jaw and hook rigging	Prevent additional downtime to redo	2		Caution employee to wear PPE (helmet and gloves) Inspect rigging for wear, etc.
Lift with the crane and place on ground	Prevent damage to equipment	2		
Weld eyes to all the cheek plates	Prevent additional downtime to redo	2		Caution employee to wear PPE (helmet and gloves)
Loosen the bolts		1		
Add rigging to each cheek plate, lift out and place on ground	Prevent damage to equipment	2		Inspect rigging for wear, etc.
Get inside of crusher with face mask, shield and electric wire wheel		1		
Clean inside of crusher with wire wheel	Prevent additional downtime to redo	2		Wear PPE
Weld eyes on new cheek plates and new jaw dies	Prevent additional downtime to redo	2		Caution employee to wear PPE (helmet and gloves)
Lift in the cheek plates and place bolts, tighten down	Prevent personal injury	2		
Attach rigging to swing jaw and place into crusher with crane	Prevent damage to equipment and reduce potential for downtime	2		Inspect rigging for wear, etc.
Place wedges and bolts into proper position		1		
Outside man will insert spacers and tighten nuts		1		
Attach rigging up to stationary and lift with crane into crusher	Prevent damage to equipment and reduce potential for downtime	2		Inspect rigging for wear, etc.
Place wedges and bolts in proper position		1		
Outside man will insert spacers and tighten nuts		1		
Remove ladder		1		

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Remove lock and tag from hydraulics		1		
Adjust crusher to proper crush dimension		1		
Remove lock and tag from primary crusher (C110) and from the C1B		1		
Clean up tools		1		

Duty 6: Shift Change

Learner will demonstrate how to accomplish safe and efficient shift change procedures. Learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. Proper shift change procedures include the following job steps:

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Crusher operator will give incoming operator a daily report (verbal and written check-sheet)	Prevents potential for downtime; affects production; increases efficiency	2		Production, report on feed size of rock, deficiencies in equipment, current overrides
Outgoing operator will complete daily check sheet and turn in to plant manager		1		
Incoming plant operator will receive maximum production and additional instruction from plant supervisor		1		
Extension shift plant operator will report problems to 2nd shift supervisor who will repair and/or report to plant manager	Prevents potential for downtime; could affect production, increases efficiency	2		

Duty 7: Unusual Conditions/Emergency Situations/Non-Routine

Learner will demonstrate ability to SLAM (stop, look, analyze and manage) non-routine tasks, unusual conditions and emergency situations. Learner will explain principles of SLAM and apply them in actual on-the-job situations.

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Observe SLAM (Stop, Look, Analyze, and Manage) twice	Non-routine tasks can represent significant risk to life and health	3		
Releasing stored energy (belt hang ups)		1		
<ul style="list-style-type: none"> Lock and tag out belt 	Zero potential for unexpected startup	3		
<ul style="list-style-type: none"> Use crane with big hooks connected to the counterweight to release tension from the belt 	Prevent personal injury and damage to equipment	3		
<ul style="list-style-type: none"> Shovel build up/debris 		1		
<ul style="list-style-type: none"> Repair gear reducer 		1		
<ul style="list-style-type: none"> Reverse process to reassemble 		1		