

<b>Company Name:</b>	<b>Equipment/Job Identification: Jaw Maintenance</b>  <b>Type of Equipment: Jaw Crusher</b> <b>Make: Nordberg</b> <b>Model: C-125</b> <b>Year:</b> <b>Use:</b>
<b>Mine Name:</b>	
<b>Date of Analysis: 02/14 thru 2/16/2006</b>	

### Pre-Assessment

All MSHA Part 46 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: Prepare to Replace Jaw Dies

Learner will demonstrate how to safely and efficiently prepare to replace jaw dies. The learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. Preparing to replace the jaw dies includes the following 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		
Conduct a self assessment	Mental or physical state will effect job efficiency and safety	2		
Obtain Equipment				
<ul style="list-style-type: none"> <li>• Schedule Crane with proper rigging</li> </ul>		1		
<ul style="list-style-type: none"> <li>• Service Truck               <ul style="list-style-type: none"> <li>▪ Conduct Pre-Op on truck using Cadman Pre-Op check sheet</li> <li>▪ Obtain Torch Kit with adequate gas</li> <li>▪ Ensure Fire Extinguishers are present</li> <li>▪ Inspect Air Compressor</li> </ul> </li> </ul>		1		
				Fuel, Oil, Leaks and Gauge

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"> <li>• Inspect welder</li> </ul>				Fuel, oil, welding leads
Obtain and inspect Tools				
<ul style="list-style-type: none"> <li>• Die lifting apparatus</li> </ul>	This is the only device that can be used to remove dies not having this device could cause loss in production. Without conducting an inspection could result in a lifting failure.	2		Not to be used for any other purpose
<ul style="list-style-type: none"> <li>○ Inspect the pins (Lifting device)</li> </ul>				
<ul style="list-style-type: none"> <li>○ Inspect condition of cables (Lifting device)</li> </ul>				
<ul style="list-style-type: none"> <li>○ Inspect the condition of the D-Ring (Lifting device)</li> </ul>				
<ul style="list-style-type: none"> <li>• Wedge/working platform</li> </ul>	Failure to use this could result in sudden unexpected movement causing serious injury	2		Company designed and fabricated blocking / working platform
<ul style="list-style-type: none"> <li>• Spline drive impact</li> </ul>		1		
<ul style="list-style-type: none"> <li>• Socket</li> </ul>		1		28mm, 32mm & 50mm
<ul style="list-style-type: none"> <li>• 3' Pry Bar</li> </ul>		1		
<ul style="list-style-type: none"> <li>• 6' Pry Bar</li> </ul>		1		
<ul style="list-style-type: none"> <li>• 8 pound sledge hammer</li> </ul>		1		
<ul style="list-style-type: none"> <li>• 4 pound sledge hammer</li> </ul>		1		
<ul style="list-style-type: none"> <li>• Wire brush</li> </ul>		1		
<ul style="list-style-type: none"> <li>• 4" Grinder with disc &amp; wire wheel</li> </ul>		1		
<ul style="list-style-type: none"> <li>• Specialty Jaw Tool Kit</li> </ul>		1		
<ul style="list-style-type: none"> <li>○ Lifting hook</li> </ul>				
<ul style="list-style-type: none"> <li>○ Lug</li> </ul>				
<ul style="list-style-type: none"> <li>○ Eye bolt</li> </ul>				
<ul style="list-style-type: none"> <li>○ Shackle</li> </ul>				
<ul style="list-style-type: none"> <li>○ Tool box</li> </ul>				
<ul style="list-style-type: none"> <li>○ Open end wrench (55mm)</li> </ul>				
<ul style="list-style-type: none"> <li>○ Hex socket head wrench (25/31mm)</li> </ul>				
<ul style="list-style-type: none"> <li>○ Hit box wrench (32mm)</li> </ul>				

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		
o T-Bar				
o Extension rod				
o Socket wrench (20mm)				
o Grease gun				
o Hose				
o Mouth piece				
o Ratchet handle (3/4)				
o Socket Wrench (80mm)				
o Spacer				
• Needle Gun		1		
• Extension cord		1		
• Putty knife		1		
• Straight edge		1		
• Tape measure		1		
Obtain Materials				
• Two 12" x 12" x 3' blocking				
• Rags		1		
• Penetrating oil		1		
• Anti-Seize		1		
• Replacement Dies		1		
• Upper and Lower Wedges		1		
• Bolts, nuts, & washers		1		
• 3/8" Rope X 30' long (Tag Line)		1		
Conduct a crew meeting	Failure to discuss task could result in serious injury due to lack of awareness of the potential hazards.	2		
• Discuss and assign job tasks (SLAM)				
• Review the maintenance manual				
• Review the Cadman task training documents (STT)				Requires completion of 5000-23 form for each miner working on the task
• Ensure that proper PPE is available for use				
o Full body harness with retractable lanyard				Each miner shall have their own harness and lanyard
o Safety Glasses				

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		
o Face shield or goggles				
o Heavy leather gloves				
o Cutting goggles				
Coordinate with the blasting crew		1		Can't be working in and around jaw when a shot is conducted
Barricade the feed hopper	Failure to barricade could allow haul truck to inadvertently dump shot rock into hopper resulting in serious injury.	2		To prevent trucks from dumping in the hopper
Lock and tag out main power	Failure to lock out and tag will result in serious injury or death and is a violation of company policy.	3		Follow company lock and tag policy (SOP:50115) Failure to follow this procedure is grounds for discharge. Main power includes: grizzly feeder, under belt, hammer, jaw, and control tower
Conduct a "dry run"; SLAM the tasks to be conducted; discuss who, why, when, where, and how	Failure to discuss task could result in serious injury due to lack of awareness of the potential hazards.	2		Ensure that the contract crane operator and rigger is present at this meeting
Stage the new dies and related hardware (blocking if flipping dies)		1		
Remove paint from machined surfaces with 4" grinder with wire wheel		1		Make sure that the grinder and cord is inspected for defects. Ensure that all proper PPE is used while grinding.
Stage and supervise crane operator		1		
Stage the service truck		1		
• Ensure that the wheels are chocked				

## Duty 2: Remove the Jaw Dies

Learner will demonstrate how to safely and efficiently remove jaw dies. The learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. Removal of the jaw dies includes the following 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 the jaw as far as it will go		1		
<ul style="list-style-type: none"> <li>Clean toggle rod threads</li> </ul>				
<ul style="list-style-type: none"> <li>Loosen the toggle spring until all tension is removed</li> </ul>				
<ul style="list-style-type: none"> <li>Back adjusting wedges out to the end of the threads</li> </ul>				
Put on harness		1		
Attach the lanyard to the designated tie off point on hammer frame	Failure to attach lanyard exposes the worker to falling hazards which could result in serious injury.	2		
Insert the wedge / working platform	Failure to use this could result in sudden unexpected movement causing serious injury	2		
Clean the lifting holes		1		
Attach lifting tool to crane hook		1		
Position the crane hook over the moveable die		1		
Insert lifting tool into the holes		1		
Signal crane operator to take up the slack on the cables		1		
Remove the nuts from the moveable die retaining bolts		1		The washers and nuts are removed from the back side of pitman. A torch may be needed to remove. Ensure that all proper PPE is used during cutting operations. Make sure fire extinguisher is immediately available.
Remove the retaining bolts and wedges		1		
Remove the wedge/working platform from the jaw		1		
Clear all non-essential personnel from the area	Failure to clear personnel could result in serious injury from shifting load or	2		Essential personnel are the signalman and one mechanic to pry

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		
	unexpected movement.			and guide the die. Non-essential personnel should move to the service truck
Pry the moveable die from the pitman with 6' pry bar		1		
Ensure that the crane hook is centered over the jaw die	Failure to center the crane hook over the jaw die may result in the die swinging and damaging front frame and is a serious hazard for all maintenance personnel	2		
Remove the moveable die				
<ul style="list-style-type: none"> <li>Signal the crane operator to hoist (slowly)</li> </ul>		1		If die does not move freely, release the tension and repeat the previous two steps
<ul style="list-style-type: none"> <li>Guide the die out of the jaw by pushing or pulling hoist cables</li> </ul>		1		Ensure that the die doesn't get hung up or snagged
<ul style="list-style-type: none"> <li>Signal the crane operator to stop the hoist when the die clears the hopper</li> </ul>		1		
<ul style="list-style-type: none"> <li>Attach the tag line to the bottom of the die when it clears the hopper</li> </ul>		1		Ensure that you are not standing under the hoisted die
<ul style="list-style-type: none"> <li>Drop the other end of the tag line over the edge of the hopper</li> </ul>		1		
<ul style="list-style-type: none"> <li>Unhook lanyard from body harness</li> </ul>		1		
<ul style="list-style-type: none"> <li>Travel to the ground</li> </ul>		1		
<ul style="list-style-type: none"> <li>Grab the end of the tag line</li> </ul>		1		Ensure that you are not standing under the hoisted die
<ul style="list-style-type: none"> <li>Signal the crane operator to resume the lift</li> </ul>		1		
<ul style="list-style-type: none"> <li>Set the die on the ground in a predetermined spot</li> </ul>		1		
<ul style="list-style-type: none"> <li>Disconnect the lifting device from the die</li> </ul>		1		
Return to jaw		1		
Wash with water hose		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		
Move retractable lanyard to the stationary side (designated tie-off point)		1		
Attach lanyard to the harness	Failure to attach lanyard exposes the worker to falling hazards which could result in serious injury.	2		
Insert the wedge / working platform	Failure to use this could result in sudden unexpected movement causing serious injury	2		
Clean stationary die and gaps along the sides of the die		1		
<ul style="list-style-type: none"> <li>Remove compacted material with 3' bar</li> </ul>				
<ul style="list-style-type: none"> <li>Remove remaining material with the needle gun</li> </ul>				Ensure that all proper PPE is used while using the needle gun
Clean the lifting holes with needle gun		1		Ensure that all proper PPE is used while using the needle gun
Position the crane hook over the stationary die		1		
Ensure that the lifting device is correctly attached to the crane hook		1		
Insert lifting tool into the lifting holes		1		
Signal crane operator to take up the slack on the cables		1		
Remove the nuts and washers from the stationary die retaining bolts		1		The washers and nuts are removed from the back side of frame. A torch may be needed to remove. Ensure that all proper PPE is used during cutting operations. Make sure Fire Extinguisher is on immediately available.
Remove the retaining bolts and wedges		1		
Remove the wedge/working platform from the jaw		1		
Clear all non-essential personnel from the area	Failure to clear personnel could result in serious injury from shifting load or unexpected movement.	2		Essential personnel are signalman and one mechanic to pry and guide the die. Non-essential personnel should move to the service truck

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		
Pry the stationary die from the frame with 6' pry bar		1		
Ensure that the crane hook is centered over the jaw die	Failure to center the crane hook over the jaw die may result in the die swinging and damaging front frame and is a serious hazard for all maintenance personnel	2		
Remove the stationary die				
<ul style="list-style-type: none"> <li>Signal the crane operator to hoist (slowly)</li> </ul>		1		If die does not move freely, release the tension and repeat the previous two steps
<ul style="list-style-type: none"> <li>Guide the die out of the jaw by pushing or pulling hoist cables</li> </ul>		1		Ensure that the die doesn't get hung up or snagged
<ul style="list-style-type: none"> <li>Signal the crane operator to stop the hoist when the die clears the hopper</li> </ul>		1		
<ul style="list-style-type: none"> <li>Attach the tag line to the bottom of the die when it clears the hopper</li> </ul>		1		Ensure that you are not standing under the hoisted die
<ul style="list-style-type: none"> <li>Drop the other end of the tag line over the edge of the hopper</li> </ul>		1		
<ul style="list-style-type: none"> <li>Unhook lanyard from the body harness</li> </ul>		1		
<ul style="list-style-type: none"> <li>Travel to the ground</li> </ul>		1		
<ul style="list-style-type: none"> <li>Grab the end of the tag line</li> </ul>		1		Ensure that you are not standing under the hoisted die
<ul style="list-style-type: none"> <li>Signal the crane operator to resume the lift</li> </ul>		1		
<ul style="list-style-type: none"> <li>Set the die on the ground in a predetermined spot</li> </ul>		1		
<ul style="list-style-type: none"> <li>Disconnect the lifting device from the die</li> </ul>		1		



### Duty 3: Jaw Prep and Cleaning

Learner will demonstrate how to safely and efficiently prep and clean the jaw. 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 prepping and cleaning of the jaw includes the following 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		
Hose the inside of the jaw with water		1		
Attach lanyard to the body harness	Failure to attach lanyard exposes the worker to falling hazards which could result in serious injury.	2		
Install the wedge/working platform inside the jaw	Failure to use this could result in sudden unexpected movement causing serious injury	2		
Climb inside jaw and on the wedge/working platform		1		
Clean machined surfaces with wire wheel		1		Ensure that a face shield is used during this step
Check the machined surfaces with a straight edge	Failure may reduce the operational life of the jaw dies because the dies would not fit properly; premature wear	2		
Grind the high spots off with grinder if needed		1		Ensure that a face shield is used during this step
Repeat the previous two steps until the surface is properly prepared		1		
Get out of the jaw		1		
Disconnect the lanyard from the body harness		1		
Go to the under jaw belt		1		
Slide down the belt to the bottom of the jaw		1		
Ensure that the lower wedge bolts for both sides are tight	Failure may reduce the operational life of the jaw dies because the dies would not fit properly; premature wear	2		
Inspect both lower wedge for debris and wear	Failure may reduce the operational life of the jaw dies because the dies would not fit properly; premature wear	2		Replace if necessary

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		
Slide out from under the jaw		1		
Replace lower wedges				
<ul style="list-style-type: none"> <li>• Obtain tools <ul style="list-style-type: none"> <li>○ 28mm socket</li> <li>○ Splined drive impact</li> <li>○ 28mm end wrench</li> <li>○ 3' pry bar</li> <li>○ Hammer</li> </ul> </li> </ul>		1		
<ul style="list-style-type: none"> <li>• Remove the nuts and washers from the wedges</li> </ul>		1		The washers and nuts are removed from the back side of frame and the pitman. A torch may be needed to remove. Ensure that all proper PPE is used during cutting operations. Make sure a fire extinguisher is immediately available.
<ul style="list-style-type: none"> <li>• Remove the bolts from the wedges</li> </ul>		1		
<ul style="list-style-type: none"> <li>• Pry the wedge out with the 3' pry bar</li> </ul>		1		
<ul style="list-style-type: none"> <li>• Clean seat with the wire brush</li> </ul>		1		
<ul style="list-style-type: none"> <li>• Check seat</li> </ul>	Failure may reduce the operational life of the jaw dies because the dies would not fit properly; premature wear	2		
<ul style="list-style-type: none"> <li>• Clean the wedge with the wire brush</li> </ul>		1		
<ul style="list-style-type: none"> <li>• Install new wedge into the seat</li> </ul>		1		Install with the lip up
<ul style="list-style-type: none"> <li>• Brush anti-seize on the bolts</li> </ul>		1		
<ul style="list-style-type: none"> <li>• Insert bolts through wedge and through frame</li> </ul>		1		
<ul style="list-style-type: none"> <li>• Put the nuts and washers on</li> </ul>		1		
<ul style="list-style-type: none"> <li>• Tighten nuts with spline drive</li> </ul>		1		

#### Duty 4: Install the Stationary Die

Learner will demonstrate how to safely and efficiently install the stationary die. 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 installing the stationary die includes the following 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		
Position the crane hook over the stationary die		1		The stationary and moveable dies are different; check the part numbers for the correct die
Conduct a visual inspection of the lifting device	This is the only device that can be used to remove dies not having this device could cause loss in production. Without conducting an inspection could result in a lifting failure.	2		
Attach the lifting device to the stationary die		1		
Attach the tag line to the bottom of the stationary die		1		
Ensure that all persons are clear from the lifting area	Failure to clear personnel could result in serious injury from shifting load or unexpected movement.	2		
Signal the crane operator to hoist the die		1		
Hoist die		1		
Center the die over the jaw opening		1		
Signal the crane operator to stop hoisting		1		
Attach lanyard to the hammer frame	Failure to attach lanyard exposes the worker to falling hazards which could result in serious injury.	2		
Climb on top of the pitman		1		
Remove the tag line from the die		1		Ensure that persons are not exposed to the suspended load
Lower the die into the jaw while guiding into position		1		
Install the wedge / work platform into the jaw	Failure to use this could result in sudden unexpected movement causing serious injury	2		
Climb into the jaw and onto the wedge		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		
Center the die	Failure may reduce the operational life of the jaw dies because the dies would not fit properly; premature wear	2		
Ensure that the die is seated properly on lower wedges	Failure may reduce the operational life of the jaw dies because the dies would not fit properly; premature wear	2		
Install the upper wedges into position	Failure may reduce the operational life of the equipment because the die may come loose	2		Install with the chisel side toward the die; this must be installed correctly
Brush anti-seize on the bolts		1		
Insert the bolts		1		
Install the washers and nuts		1		Washers and nuts are installed from the back side of frame
Remove the lifting device from the die		1		
Reposition the crane hook over the moveable die		1		
Tighten the nuts with spline drive impact	Failure may reduce the operational life of the equipment because the die may come loose	2		
Remove the work platform		1		
Remove lanyard from the body harness		1		

### Duty 5: Install the Moveable Die

Learner will demonstrate how to safely and efficiently install the moveable die. 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 installing the moveable die includes the following 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		
Conduct a visual inspection of the lifting device	This is the only device that can be used to remove dies not having this device could cause loss in production. Without conducting an inspection could result in a lifting failure.	2		
Attach the lifting device to the moveable die		1		
Ensure that all persons are clear from the lifting area	Failure to clear personnel could result in serious injury from shifting load or unexpected movement.	2		
Signal the crane operator to hoist the die		1		Only the pre assigned person will give signals to crane operator
Hoist die		1		
Center the die over the jaw opening		1		
Signal crane operator to stop hoist		1		
Move retractable lanyard to the stationary side (designated tie-off point)		2		
Attach lanyard to body harness	Failure to attach lanyard exposes the worker to falling hazards which could result in serious injury.	2		
Proceed to the stationary side of the jaw		1		
Remove the tag line from the die		1		Ensure that persons are not exposed to the suspended load
Lower the die into the jaw while guiding into position		1		
Install the wedge / work platform into the jaw	Failure to use this could result in sudden unexpected movement causing serious injury	2		
Climb into the jaw and onto the wedge		1		
Center the die	Failure may reduce the operational life of the jaw dies because the dies would not fit properly; premature wear	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		
Ensure that the die is seated properly on lower wedges	Failure may reduce the operational life of the jaw dies because the dies would not fit properly; premature wear	2		
Install the upper wedges into position	Failure may reduce the operational life of the equipment because the die may come loose	2		Install with the chisel side toward the die; this must be installed correctly
Brush on anti-seize onto the bolts		1		
Insert the bolts		1		
Install the washer and nuts		1		Washers and nuts are installed from the back side of pitman
Remove the lifting device from the die		1		
Reposition the crane hook away from the working area		1		
Tighten the nuts with splined drive impact	Failure may reduce the operational life of the equipment because the die may come loose	2		
Climb out of the jaw		1		
Remove the work platform		1		
Lower lifting device to ground level		1		
Remove the die lifting device from crane hook		1		
Inspect lifting device	This is the only device that can be used to remove dies not having this device could cause loss in production. Without conducting an inspection could result in a lifting failure.	2		Inspect for Cuts, nicks, gouges, cracks, excessive corrosion, heat discoloration, bent or any other defects.
Store lifting device in proper place		1		
Communicate with crane operator that the crane is done		1		Ensure that Crane operator fills out vendor daily report form

## Duty 6: Flip Jaw Dies

Learner will demonstrate how to safely and efficiently flip the jaw dies. The learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. A safe and efficient flipping of the jaw dies includes the following 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 the jaw as far as it will go		1		
<ul style="list-style-type: none"> <li>Clean toggle rod threads</li> </ul>				
<ul style="list-style-type: none"> <li>Loosen the toggle spring until all tension is removed</li> </ul>				
<ul style="list-style-type: none"> <li>Back adjusting wedges out to the end of the threads</li> </ul>				
Put on harness		1		
Attach the lanyard to the designated tie off point on hammer frame	Failure to attach lanyard exposes the worker to falling hazards which could result in serious injury.	2		
Insert the wedge / working platform	Failure to use this could result in sudden unexpected movement causing serious injury	2		
Clean the lifting holes		1		
Attach lifting tool to crane hook		1		
Position the crane hook over the moveable die		1		
Insert lifting tool into the holes		1		
Signal crane operator to take up the slack on the cables		1		
Remove the nuts from the moveable die retaining bolts		1		The washers and nuts are removed from the back side of pitman a Torch may be needed to remove. Ensure that all proper PPE is used during cutting operations. Make sure Fire Extinguisher is on immediately available.
Remove the retaining bolts and wedges		1		
Remove the wedge/working platform from the jaw		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		
Clear all non-essential personnel from the area	Failure to clear personnel could result in serious injury from shifting load or unexpected movement.	2		Essential personnel are signalman and one mechanic to pry and guide the die. Non-essential personnel should move to the service truck
Pry the moveable die from the pitman with 6' pry bar		1		
Ensure that the crane hook is centered over the jaw die	Failure to center the crane hook over the jaw die may result in the die swinging and damaging front frame and is a serious hazard for all maintenance personnel	2		
Remove the moveable die				
<ul style="list-style-type: none"> <li>Signal the crane operator to hoist (slowly)</li> </ul>		1		If die does not move freely, release the tension and repeat the previous two steps
<ul style="list-style-type: none"> <li>Guide the die out of the jaw by pushing or pulling hoist cables</li> </ul>		1		Ensure that the die doesn't get hung up or snagged
<ul style="list-style-type: none"> <li>Signal the crane operator to stop the hoist when the die clears the hopper</li> </ul>		1		
<ul style="list-style-type: none"> <li>Attach the tag line to the bottom of the die when it clears the hopper</li> </ul>		1		Ensure that you are not standing under the hoisted die
<ul style="list-style-type: none"> <li>Drop the other end of the tag line over the edge of the hopper</li> </ul>		1		
<ul style="list-style-type: none"> <li>Unhook lanyard from body harness</li> </ul>		1		
<ul style="list-style-type: none"> <li>Travel to the ground</li> </ul>		1		
<ul style="list-style-type: none"> <li>Grab the end of the tag line</li> </ul>		1		Ensure that you are not standing under the hoisted die
<ul style="list-style-type: none"> <li>Signal the crane operator to resume the lift</li> </ul>		1		
<ul style="list-style-type: none"> <li>Set the die face down on the blocking in a predetermined spot</li> </ul>		1		
<ul style="list-style-type: none"> <li>Disconnect the lifting device from the die</li> </ul>		1		
Return to jaw		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		
Wash with water hose		1		
Move retractable lanyard to the stationary side (designated tie-off point)		1		
Attach lanyard to the harness	Failure to attach lanyard exposes the worker to falling hazards which could result in serious injury.	2		
Insert the wedge / working platform	Failure to use this could result in sudden unexpected movement causing serious injury	2		
Clean stationary die and gaps along the sides of the die		1		
<ul style="list-style-type: none"> <li>Remove compacted material with 3' bar</li> </ul>				
<ul style="list-style-type: none"> <li>Remove remaining material with the needle gun</li> </ul>				Ensure that all proper PPE is used while using the needle gun
Clean the lifting holes with needle gun		1		Ensure that all proper PPE is used while using the needle gun
Position the crane hook over the stationary die		1		
Ensure that the lifting device is correctly attached to the crane hook		1		
Insert lifting tool into the lifting holes		1		
Signal crane operator to take up the slack on the cables		1		
Remove the nuts and washers from the stationary die retaining bolts		1		The washers and nuts are removed from the back side of frame. A torch may be needed to remove. Ensure that all proper PPE is used during cutting operations. Make sure Fire Extinguisher is immediately available.
Remove the retaining bolts and wedges		1		
Remove the wedge/working platform from the jaw		1		
Clear all non-essential personnel from the area	Failure to clear personnel could result in serious injury from shifting load or unexpected movement.	2		Essential personnel are signalman and one mechanic to pry and guide the die. Non-essential personnel should move to the service truck

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		
Pry the stationary die from the frame with 6' pry bar		1		
Ensure that the crane hook is centered over the jaw die	Failure to center the crane hook over the jaw die may result in the die swinging and damaging front frame and is a serious hazard for all maintenance personnel	2		
Remove the stationary die				
<ul style="list-style-type: none"> <li>Signal the crane operator to hoist (slowly)</li> </ul>		1		If die does not move freely, release the tension and repeat the previous two steps
<ul style="list-style-type: none"> <li>Guide the die out of the jaw by pushing or pulling hoist cables</li> </ul>		1		Ensure that the die doesn't get hung up or snagged
<ul style="list-style-type: none"> <li>Signal the crane operator to stop the hoist when the die clears the hopper</li> </ul>		1		
<ul style="list-style-type: none"> <li>Attach the tag line to the bottom of the die when it clears the hopper</li> </ul>		1		Ensure that you are not standing under the hoisted die
<ul style="list-style-type: none"> <li>Drop the other end of the tag line over the edge of the hopper</li> </ul>		1		
<ul style="list-style-type: none"> <li>Unhook lanyard from the body harness</li> </ul>		1		
<ul style="list-style-type: none"> <li>Travel to the ground</li> </ul>		1		
<ul style="list-style-type: none"> <li>Grab the end of the tag line</li> </ul>		1		Ensure that you are not standing under the hoisted die
<ul style="list-style-type: none"> <li>Signal the crane operator to resume the lift</li> </ul>		1		
<ul style="list-style-type: none"> <li>Set the die on the blocking in a predetermined spot</li> </ul>		1		
<ul style="list-style-type: none"> <li>Disconnect the lifting device from the die</li> </ul>		1		

## Duty 7: Jaw Prep and Cleaning

Learner will demonstrate how to safely and efficiently perform jaw prep and cleaning. 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 jaw prep and cleaning includes the following 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		
Hose the inside of the jaw with water		1		
Attach lanyard to the body harness	Failure to attach lanyard exposes the worker to falling hazards which could result in serious injury.	2		
Install the working platform inside the jaw	Failure to use this could result in sudden unexpected movement causing serious injury	2		
Clean machined surfaces with wire wheel		1		Ensure that a face shield is used during this step
Check the machined surfaces with a straight edge	Failure may reduce the operational life of the jaw dies because the dies would not fit properly; premature wear	2		
Grind the high spots off with grinder if needed		1		Ensure that a face shield is used during this step
Repeat the previous two steps until the surface is properly prepared		1		
Get out of the jaw		1		
Disconnect the lanyard from the body harness		1		
Go to the under jaw belt		1		
Slide down the belt to the bottom of the jaw		1		
Ensure that the lower wedge bolts for both sides are tight	Failure may reduce the operational life of the jaw dies because the dies would not fit properly; premature wear	2		
Inspect both lower wedge for debris and wear	Failure may reduce the operational life of the jaw dies because the dies would not fit properly; premature wear	2		Replace if necessary

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		
Slide out from under the jaw		1		
Replace lower wedges				
<ul style="list-style-type: none"> <li>• Obtain tools</li> </ul>		1		
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>○ 28mm socket</li> </ul> </li> </ul>				
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>○ Splined drive impact</li> </ul> </li> </ul>				
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>○ 28mm end wrench</li> </ul> </li> </ul>				
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>○ 3' pry bar</li> </ul> </li> </ul>				
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>○ Hammer</li> </ul> </li> </ul>				
<ul style="list-style-type: none"> <li>• Remove the nuts and washers from the wedges</li> </ul>		1		The washers and nuts are removed from the back side of frame and the pitman. A torch may be needed to remove. Ensure that all proper PPE is used during cutting operations. Make sure a fire extinguisher is immediately available.
<ul style="list-style-type: none"> <li>• Remove the bolts from the wedges</li> </ul>		1		
<ul style="list-style-type: none"> <li>• Pry the wedge out with the 3' pry bar</li> </ul>		1		
<ul style="list-style-type: none"> <li>• Clean seat with the wire brush</li> </ul>		1		
<ul style="list-style-type: none"> <li>• Check seat</li> </ul>	Failure may reduce the operational life of the jaw dies because the dies would not fit properly; premature wear	2		
<ul style="list-style-type: none"> <li>• Clean the wedge with the wire brush</li> </ul>		1		
<ul style="list-style-type: none"> <li>• Install new wedge into the seat</li> </ul>		1		Install with the lip up
<ul style="list-style-type: none"> <li>• Brush anti-seize on the bolts</li> </ul>		1		
<ul style="list-style-type: none"> <li>• Insert bolts through wedge and through frame</li> </ul>		1		
<ul style="list-style-type: none"> <li>• Put the nuts and washers on</li> </ul>		1		
<ul style="list-style-type: none"> <li>• Tighten nuts with spline drive</li> </ul>		1		

## Duty 8: Flip the Stationary Die

Learner will demonstrate how to safely and efficiently flip the stationary die. 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 flipping the stationary die includes the following 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		
Position the crane hook over the stationary die		1		The stationary and moveable dies are different; check the part numbers for the correct die
Conduct a visual inspection of the lifting device	This is the only device that can be used to remove dies not having this device could cause loss in production. Without conducting an inspection could result in a lifting failure.	2		
Clean die		1		
Check die machine surface with straight edge	Bent dies can cause severe damage to crusher which would cause stopping of production.	3		If old die is bent replace with new die refer die replacement duty.
Trim edge of die with torch if necessary to original dimension.	Failure to trim the edge will result in delay of task.	2		Wear proper PPE
Attach the lifting device to the opposite end of the stationary die		1		Worn end up
Attach the tag line to the bottom of the stationary die (Opposite of lifting device)		1		
Ensure that all persons are clear from the lifting area	Failure to clear personnel could result in serious injury from shifting load or unexpected movement.	2		
Signal the crane operator to hoist the die		1		
Hoist die		1		
Center the die over the jaw opening		1		
Signal the crane operator to stop hoisting		1		
Attach lanyard to the hammer frame	Failure to attach lanyard exposes the worker to falling hazards which could result in serious 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		
Climb on top of the pitman		1		
Remove the tag line from the die		1		Ensure that persons are not exposed to the suspended load
Lower the die into the jaw while guiding into position		1		
Install the wedge / work platform into the jaw	Failure to use this could result in sudden unexpected movement causing serious injury	2		
Climb into the jaw and onto the wedge		1		
Center the die	Failure may reduce the operational life of the jaw dies because the dies would not fit properly; premature wear	2		
Ensure that the die is seated properly on lower wedges	Failure may reduce the operational life of the jaw dies because the dies would not fit properly; premature wear	2		
Install the upper wedges into position	Failure may reduce the operational life of the equipment because the die may come loose	2		Install with the chisel side toward the die; this must be installed correctly
Brush anti-seize on the bolts		1		
Insert the bolts		1		
Install the washers and nuts		1		Washers and nuts are installed from the back side of frame
Remove the lifting device from the die		1		
Reposition the crane hook over the moveable die		1		
Tighten the nuts with spline drive impact	Failure may reduce the operational life of the equipment because the die may come loose	2		
Remove the work platform		1		
Remove lanyard from the body harness		1		

## Duty 9: Flip Moveable Die

Learner will demonstrate how to safely and efficiently flip the moveable die. 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 flipping a moveable die includes the following 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		
Conduct a visual inspection of the lifting device	This is the only device that can be used to remove dies not having this device could cause loss in production. Without conducting an inspection could result in a lifting failure.	2		
Clean die		1		
Check die machine surface with straight edge	Bent dies can cause severe damage to crusher which would cause stopping of production.	3		If old die is bent replace with new die refer to the die replacement duty.
Trim edge of die with torch if necessary to original dimension.	Failure to trim the edge will result in delay of task.	2		Wear proper PPE
Attach the lifting device to the opposite end of the moveable die		1		Worn end up
Attach the tag line to the bottom of the moveable die (Opposite of lifting device)		1		
Ensure that all persons are clear from the lifting area	Failure to clear personnel could result in serious injury from shifting load or unexpected movement.	2		
Signal the crane operator to hoist the die		1		Only the pre assigned person will give signals to crane operator
Hoist die		1		
Center the die over the jaw opening		1		
Signal crane operator to stop hoist		1		
Move retractable lanyard to the stationary side (designated tie-off point)		2		
Attach lanyard to body harness	Failure to attach lanyard exposes the worker to falling hazards which could result in serious injury.	2		
Proceed to the stationary side of the jaw		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 the tag line from the die		1		Ensure that persons are not exposed to the suspended load
Lower the die into the jaw while guiding into position		1		
Install the wedge / work platform into the jaw	Failure to use this could result in sudden unexpected movement causing serious injury	2		
Climb into the jaw and onto the wedge		1		
Center the die	Failure may reduce the operational life of the jaw dies because the dies would not fit properly; premature wear	2		
Ensure that the die is seated properly on lower wedges	Failure may reduce the operational life of the jaw dies because the dies would not fit properly; premature wear	2		
Install the upper wedges into position	Failure may reduce the operational life of the equipment because the die may come loose	2		Install with the chisel side toward the die; this must be installed correctly
Brush on anti-seize onto the bolts		1		
Insert the bolts		1		
Install the washer and nuts		1		Washers and nuts are installed from the back side of pitman
Remove the lifting device from the die		1		
Reposition the crane hook away from the working area		1		
Tighten the nuts with splined drive impact	Failure may reduce the operational life of the equipment because the die may come loose	2		
Climb out of the jaw		1		
Remove the work platform		1		
Lower lifting device to ground level		1		
Remove the die lifting device from crane hook		1		
Inspect lifting device	This is the only device that can be used to remove dies not having this device could cause loss in production. Without conducting an inspection could result in a lifting failure.	2		Inspect for Cuts, nicks, gouges, cracks, excessive corrosion, heat discoloration, bent or any other defects.



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		
Store lifting device in proper place		1		
Communicate with crane operator that the crane is done		1		Ensure that Crane operator fills out vendor daily report form

## Duty 10: Adjusting closed side setting (CSS)

Learner will demonstrate how to safely and efficiently adjust the closed side setting of the jaw (CSS). 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 adjusting the closed side setting includes the following 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		
Slide under the jaw on the belt		1		
Measure the current opening between the stationary and moveable jaw dies	Failure to measure the opening may result in excessive stress on bearing which would reduce the operational life of the equipment, and damage to down stream belts and crushers.	2		Measure from die ridge to ridge, Target measurement for the open setting is 6"
Tighten the adjustment wedges as needed to obtain the 6" OSS setting	Failure to properly adjust the opening may result in excessive stress on bearing which would reduce the operational life of the equipment, and damage to down stream belts and crushers.	2		Count the rotations (one rotation is equal to 1/16 of a inch) to adjust the wedges equally
Inspect the toggle rod and springs	Failure to conduct could result in equipment damage to the Jaw, which would severely reduce the operational life of the equipment, belt damage, secondary crusher and production would be stopped.	3		
<ul style="list-style-type: none"> <li>Look for cracks</li> </ul>				Replace immediately if cracks are found
<ul style="list-style-type: none"> <li>Look for visible wear on the rod</li> </ul>				Schedule replacement with site supervisor
Tighten the toggle rod nuts until knocking stops to obtain (16 ¾" overall spring length)	Toggle rod could come loose which would result in equipment damage which would severely reduce the operational life of the equipment.	2		

### Duty 11: Work area cleanup

Learner will demonstrate how to safely and efficiently perform work area cleanup. 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 work area cleanup includes the following 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		
Gather and account for all tools		1		
Put all special jaw tools back into the tool kit	Failure to replace tools could result in delays on next job.	2		
Wrap all hoses up and put into the proper places		1		
Scrap out old jaw dies with the loader		1		
Conduct general housekeeping cleanup duties around the jaw		1		

## Duty 12: Jaw Start up

Learner will demonstrate how to safely and efficiently perform the Jaw start up. 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 Jaw start up includes the following 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		
Assemble all team members at the main power		1		
Remove lock and tags		1		Follow proper company policy
Take a head count	Failure to conduct head count may result in a high probability of injury or death to workers because of sudden energizing of equipment.	3		
Turn main power on		1		Stand to the side and turn face away from the switch
Push the start button		1		
Listen for unusual noises	Failure to listen for noise may result in not identifying possible damage to the toggle plate reducing production.	2		Knocking noises may indicate a loose toggle plate
Tighten the toggle spring if a knocking noise is heard	Failure to tighten toggle spring may result in possible damage to the toggle plate reducing production.	2		This step requires proper lock and tag out procedure; follow company policy
Remove barricade		1		
Release the jaw crusher to the operator		1		
Order new Jaw dies		1		
Notify the drill and blast personnel when job is completed		1		
Conduct follow up during the next shift	Failure to conduct follow up could result in equipment damage from loose bolts.	2		
<ul style="list-style-type: none"> <li>Check die bolt to ensure that they are tight</li> </ul>				
<ul style="list-style-type: none"> <li>Listen for knocking noises</li> </ul>				