



DALMIA CEMENT (B) LIMITED – ARIYALUR

MECHANICAL

Issue No. 02	Rev. No: 00	Effective Date: 01-11-2019	SOP/MEC/009
Issued By: M.R		Approved By: HOD-Mechanical	
SOP FOR SECONDARY CRUSHER TOOTH SEGMENT REPLACEMENT			

Scope : This SOP is applicable to Safe working for Secondary crusher tooth segment replacement.

Responsibility : **Section Engineer – Mech**

Accountability : **Section Manager – Mech**

PPE:

1. Safety Helmet,
2. Safety steel toe shoe,
3. Hand Gloves Cotton/Leather
4. Safety goggles.
5. Nose mask.

Tools:

1. Chipping machine
2. Hand blower
3. Pneumatic wrench - 2nos
4. 36mm deep socket -2nos
5. Hammer 8 pound – 2nos
6. Binding wires
7. Cutting pliers
8. Wire brush

Hazards:

Risks associated

Body injury
Cut injury
Caught in-between

Mitigating Measures

Safe and health tools and tackles
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Training needs:

1. Emergency preparedness
2. Pneumatic wrench operation
3. Dismantling & Assembly procedure



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1. Take confined space permit with the line clearance. Use LOTO system
2. Permits and line clearance paper should be with the people who are working in the site.
3. Use PPE's while working
4. Take the shutdown of Crusher, top and bottom belt conveyors
5. Hook the confined space token in designated place and open the door.
6. Lock the wedge piece b/w rotors and also in side combs
7. Clean the coating in secondary crusher's rotor.
8. Inspect and mark the worn out segment for replacement.
9. Cleaning of segment bolts by Drill bit and compressed air.
10. Check the pneumatic wrench for any air leakage , hose damage and mounting of spindle
11. Loose the segment bolts and remove nut , lock
12. Remove worn out segment.
13. Clean the surface and check pan stampings condition
14. Check the wear rate of segment locking welding bead and weld if it is necessary.
15. Install new segment with fastener and tight the bolts by using pneumatic wrench.
16. Remove wedge piece, all tools and tackles.
17. Take out confined space token and ensure that nothing inside crusher
18. Close the door and take the trial.



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Emergency / Emergency Shut OFF:

If body injury is there, First aid will be given and inform to the Safety department or Call Emergency number 3108/9865152222

Records/Annexure:

1. JSA is enclosed below.
2. Isolation Matrix.

JOB SAFETY ANALYSIS :(JSA)

Job Safety Analysis	Job: Secondary crusher segments changing	Date: 25 – 06 - 2012	Analysis by Section Engineer	Reviewed by: Section Head
Title of employee doing job : Section engineer	Supervisor: Section Engineer	Department: Mech	Section: LS CRUSHER	Approved by: HOD-Mechanical
Reqd./recommended PPE's : Safety Helmet, Safety shoe, Hand Gloves, Safety goggles. Nose mask.				
Sequence of Basic Job Steps	Potential Hazards	Recommended Safe Job Procedure	What Could Go Wrong	Corrective Action
Open the inspection door	Body injury	Use only proper spanners to avoid slip / shear of bolt and nut during un screwing.	Spanners may slip and hit hands while un screwing. Bolt may shear/cut due to load	Check the condition of the bolt / nut and spanners.
Caught in between	Leg injury	First lock the two rotors with stoppers	Stoppers may be in damage condition.	Check the condition of stoppers
			Leg can caught in between	Check whether stopper was fixed properly



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Struck up of drill bit while cleaning the sticky material.	Body injury	Use only certified drilling machines to avoid slip / shear of drill bit during cleaning.	Drill bit may struck up and hit hands while cleaning. Drill bit may shear / cut during load	Check the condition of the drill bit / handle.
Hand Blower operation	Eye injury & Dust inhalation	Use only certified Hand blowers.	Power Cable damage	Check the condition of cable and certification to use.
		Use safety goggles, nose mask and earplug	PPE may be in damaged cond. Dust may spilled into eyes	Check the condition of PPE
Removing the nut of the segment	Body injury	Use only certified Pneumatic wrench to avoid unsafe operation	Hose burst	Check the valve, hose and wrench condition
	Burn injury	Use proper hand gloves	Hand gloves may be in damage condition	Check the condition of hand gloves
Cutting the bolt nut of the segment	Body injury	Use only proper regulators and flashback arrestors to ensure safe operation.	Hose burn Cutting torch melting	Check the condition of regulators and flashback arrestors
Remove the segment	Hand injury	Use good hammers to shake the segments from its location.	Hammer may be in damaged condition	Check the condition of hammer
	Leg injury	Use proper mechanical safety shoes.	It may scratch/ injure the leg of the handling person	Check whether it is mechanical safety shoe & condition of the shoe
Remove the spacer	Finger injury	Use good cutting pliers to remove the spacer.	Cutting pliers may be in damage condition	Check the condition of Cutting pliers
			It may scratch/ injure the finger of the handling person	
Fixing the segment	Hand injury	Use good Tommy bars to match the segments.	Tommy bar may be in damaged condition	Check the condition of Tommy bar
	Leg injury	Use proper mechanical safety shoes.	It may scratch/ injure the leg of the handling person	Check whether it is a mechanical safety shoe and its condition
Fixing the nut of the segment	Body injury	Use only certified Pneumatic wrench to avoid unsafe operation .	Hose burst	Check the valve, hose and wrench condition
			Box spanner slip	Check the box spanner is properly fixed with nut



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Close the inspection door	Body injury	Use only proper spanners to avoid slip / shear of bolt and nut during screwing.	Spanners may slip and hit hands while screwing. Bolt may shear/cut due to load	Check the condition of the bolt / nut and spanners
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SL No	Activity	Isolation Type					
		Electrical Energy			Other Energy		
1	Primary crusher Inspection	Tag /Name of the Equipment	Apron feeder 211AF1 Drive	Primary Crusher 211CR1 Drive	Truck Tippler platform Barricade	Rotor to be locked	
			Belt conv 211BC1 Drive				