



DALMIA CEMENT (B) LIMITED – ARIYALUR



MECHANICAL

| | | | |
|---|-------------|-----------------------------|-------------|
| Issue No. 02 | Rev. No: 00 | Effective Date: 01.11.2019 | SOP/MEC/169 |
| Issued By: M.R | | Approved By: HOD-Mechanical | |
| SOP FOR PRIMARY CRUSHER 3 TOOTH CAP REPLACEMENT | | | |

Scope : This SOP is applicable to Safe working for Primary crusher 3 Tooth Cap 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. Hydraulic tensioner Enerpac 25000 Nm
2. Welding shield
3. Welding machine
4. Chipping hammer
5. Drill bit
6. Wire Brush
7. Hand blower
8. Cutting set
9. EOT Crane

Hazards:

Risks associated

Body injury
Cut injury
Caught in-between

Mitigating Measures

Safe and health tools and tackles
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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



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4. Take the shutdown of Crusher, Apron feeder and bottom belt conveyor
5. Hook the confined space token in designated place and open the door.
6. Inspect and mark the Damaged 3 Tooth Cap in Rotor.
7. Lock the wedge piece b/w rotors and also in side combs.
8. Cut the Cover plates in Damaged and Worn out 3 Tooth caps
9. Remove the 3 tooth cap locking bolt by Hydraulic tensioner using with 95 mm deep socket
10. After the dismantling of damaged and worn out caps Clean the coating in Rotor Barrel by Drill bit and hand blower lock in which used to lock the 3 tooth caps
11. take out the worn out cap and locate the new 3 tooth caps with new bolts in Rotor barrel by the help of EOT crane.
12. Tight the 3 tooth caps by Hydraulic tensioner providing of 11000 Nm Torque.
13. New 3 Tooth cap Cover plates to be welded with new one to avoid damage occur in bolt locking system during operation
14. Take out confined space token and ensure that nothing inside crusher
15. Close the door and take the trial.

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.



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JOB SAFETY ANALYSIS :(JSA)

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|--|--|--|---|--|
| Job Safety Analysis | Job: Primary crusher 3 tooth cap replacemen t | Date: 08 – 04 - 2020 | 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 |
| 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 have 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. |



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|-------------------------------|------------------------------|---|--|--|
| Using the Cutting machine | Hand injury | Use only certified cutting sets | Cutting set fail | Check the condition of Hoses, cutting torch, Flash back arrester, Blankets, Pressure Quage |
| Using the Welding machine | Hand injury (electric Shock) | Use proper Earth connection | Use proper Earth connection | Check the earth connection before doing the welding |
| Hydraulic tensioner operation | Hand injury | Use only certified Hydraulic tensioner | Power cable and hoses damages | Check the condition of cable and certification to use. |
| 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 tools condition |

| SL No | Activity | Isolation Type | | | | | | |
|-------|--|----------------------------|---------------------------|------------------------------|-----------------------------|--------------------|--|--|
| | | Electrical Energy | | | | Other Energy | | |
| 1 | Primary crusher In-situ casting repairingn | Tag /Name of the Equipment | Apron feeder 211AF1 Drive | Primary Crusher 211CR1 Drive | Unloading Hopper Barricaded | Rotor to be locked | | |
| | | | Belt conv 211BC1 Drive | | | | | |



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