**SOP FOR**

1. **PURPOSE: Safe maintenance of pug mill for optimum performance.**
2. **SCOPE:** **Blast Furnace Accessories.**
3. **RESPONSIBILITY: Engineer in charge & workmen on job.**
4. **PROCEDURE: PUG MILL MAINTENANCE.**

PPE –s to be used:

         Safety shoes, Helmet, Hand gloves, Cotton cloth and goggle

Work no. 1     :  General maintenance of pug mill

Work No.2     :  Roller removal of pug mill

Work No.3     :  V Belt replacement of Pugmill

Aspect – Impact

|  |  |
| --- | --- |
| Scrap generation | Resource Depletion |
| Oil Spillage | Land contamination & Resource Depletion |
| Oil traced waste generation | Land contamination & Resource Depletion |
| Fumes | Health |

[Hazards identified](file:///C:/Users/ankith/AppData/Local/Temp/Temp5_WI.zip/4%20RISK%20ASSESMENT/WIMAINT40%20PUG%20MILL%20MAINTENANCE.xls)

Mechanical Hazard     -           Trapping in between slinged items, moving parts.

                                                 Impact of hammer, slinged items, tools & tackles.

                                                 Falling of weights , hammer , slinged items. Bolts, etc.

Physical Hazard                 \_       Temperature

1. Human Behaviour Hazard                \_.Person working under alcohol ,Horseplay ,Not usage of PPE s like helmet and dust mask ,Person bypassing work instruction , Violation of Covid 19 Pandemic protocol

Electrical Hazard                 -          Electrical shock.

**Work No.1 General maintenance of pug mill**

  1.      Take clearance from production .

2.      Take the electrical shutdown with loto.

3. Take work permit .

4. Clean inner portion with the help of operation.

4.      Open the inspection door of the gear box. Check for the wear out of the teeth of gears.

5.      Check for any wear out of the liner plate in the mill. If wear out is observed, change the liner plate with new one.

6.      Check the bearings of the main shaft.

6.      Check for any oil leakages through the gear box.

7.      Follow material handling procedure (WI/MAINT/12) for handling of rollers, gearbox, and shaft.

8.      Inspect the structure of the pug mill. If required, strengthen or change the same.

9.      Follow the housekeeping procedure as per [WI/MAINT/91](file:///C:/Users/ankith/AppData/Local/Temp/Temp5_WI.zip/WI/WIMAINT91%20HOUSE%20KEEPING.doc).

10.  Clear the electrical shut down as per shutdown procedure.

11.  Take the trial of the mill

12.  If the trials found ok.

13. After Normalcy of Equipment Clear the work permit and hand over it to operation.

14. ~~Clear the work permit.~~

15~~. Give the clearance to the production.~~

**Work No.2   Roller removal of Pugmill**

1.      Take clearance from production for working on the pug mill.

2.      Take electrical shut down of the required pug mill.

3 Take work permit .

4.      After electrical shut down is taken apply local push button of the pugmill for additional safety.

5.      Clean the pug mill and remove all the clay from the pug mill.

6 . Remove the roof sheeting of pugmill structure.

7.      Cut the locking plate of the shaft and remove the locking arrangement of the roller.

8.      Using proper leverage remove the roller outside its slot.

9.      Lift the roller using certified sling and hydra.

10.    For fixing back the roller follow the opposite sequence for removing the roller.

11.     After roller is fixed weld locking plate at the shaft end.

12. Fix back the roof sheeting of pugmill structure.

13. Clear shut down and take trials.

14. After Normalcy of Equipment Clear the work permit and hand over it to operation.

**Work No.3  V belt replacement of Pugmill**

1. Take shutdown of the required Pugmill after taking clearance from production department.
2. Take work permit.
3. Remove the guard.

3.      Mark the existing position of the screw take up using chalk and release the tension of the belt after

loosening the screw take up.

4.      Replace the V belts using new V belts (C2290 / C88 – 3nos )

5.      Tighten the V belts by tightening the screw take up by bringing the motor to the position where the

chalk marking is there.

6. Check the alignment of both the pulleys.

7. Fix back the guard.

8.     Clear shut down and take trials.

9. After Normalcy of Equipment Clear the work permit and hand over it to operation.

**DOs**

* Always take shut down of the pugmill before working on the rollers.
* V-belts to be changed only after releasing load on the belt.

**DONTs**

* Fix the V belts directly without loosening screw take up.
* Remove guards while the mill is running or without taking shut down.

**REFERENCES: Operation & Maintenance manual**.

**Amendement Record**

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| **Date** | **Manual Section Ref. & Para** | **Brief details of Revision** | **New Rev.** |
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| --- | --- | --- |
| **Prepared By:**  Area Engineer | **Reviewed & Issued By:**  Management Representative | **Approved By:**  Mechanical Head |
| **Signature:** | **Signature:** | **Signature:** |
| **Review Date: 15.12.2022** | **Review Date:** | **Review Date:** |