**SOP FOR**

1. **PURPOSE: Safe Lubrication for optimum performance**
2. **SCOPE:** **Blast furnace Accessories**.
3. **RESPONSIBILITY: Shift Engineer & workmen on job.**
4. **PROCEDURE: LUBRICATION JOB.**

**PPE –s to be used**:

* Helmet, Safety shoes, Dust masks, Hand gloves and goggles.

Work No 1                 :           Lubrication of gear box/ equipment

Work No 2                 :           Greasing of Equipment.

Wok no 3                   :           Collection and disposal of waste and burnt oil

**Aspect – impact**

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

[Hazards identified](file:///D:\4%20RISK%20ASSESMENT\WIMAINT93%20LUBRICATION.xls)

Mechanical Hazard

1.    Trapping between moving parts due to improper guarding,

2.    Removal of machine guard etc

3.    Impact of hammer and tools

4.    Fall of person due to poor housekeeping and grease / oil

5.    Impact of high-pressure oil

Chemical hazard    -

1.    Fall of oil / lubricant in eyes

2.    Co gas Poisoning

**Electric hazard**

1)    Electric shock on equipment

2)    Fire due to electrical short circuit in paint store yard

**Human behavior: -**

1. Alcoholism,
2. casual approach & horseplay
3. Non usage of correct tools & PPE.

**Work No 1                :           Lubrication of gear box/ equipment**

A.   Clean the gear box/equipment with the cotton rags/compressed air.

B.   Check the level and quality of the oil in gearbox.

C.   If the level of the oil is less, pour the recommended oil in the gear box from the pouring nipple hole or by opening the inspection flange ~~(~~ by stopping the equipment)

D.   Ensure that surrounding waste didn’t fall in the gearbox that can damage gears and bearings leading the failure of gearbox.

E   Fit back the pouring opening with tight fitting.

F.   If the quality of oil is not O.K., check the thickness of the oil, darkness of the colour.

G.   Immediately take the sample of the oil and test the oil quality.

H.      If it found not O.K., replace the oil.

I.    Always pour the oil using proper funnel for filling the oil in equipment.

J.   Use tray below the equipment, which is being lubricated to avoid any spillage of oil on land.

J.    For filling the oil in the power pack, make direct pipe connection from hand pump to the power pack and fill the Power pack

K.   If the quality of the oil in the power pack is found not good, then clean the using ELC/EOC machine.

L.   Ensure no leakage of oil through any fitting.

M.   Return scrap oil back to store for proper disposal.

**Work No 2                :           Greasing of Equipment.**

A.   Clean the portion of the equipment to be greased.

B.   Grease the equipment thoroughly.

C.   Ensure usage of the tray below the equipment while greasing.

D.  Collect all the removed waste grease and return back same to store

1.    Do follow the housekeeping procedure as per [WI/MAINT/91](file:///D:\pending\WIMAINT91%20HOUSE%20KEEPING.doc).

2.    Do handle the oil barrels properly to avoid any breakage of tin. Use procedure [WI/MAINT/12](file:///D:\pending\WIMAINT12%20MATERIAL%20HANDLING%20.doc) for material handling.

**Work No 3: Collection and disposal of waste and burnt oil**

1. Waste \ burnt oil collected from machinery or equipments to be collected in the waste oil reservoir kept in mechanical workshop.
2. Waste oil to be stored in the reservoir for at least one day for proper settlements and separation of the sludge and water.
3. Sludge and water mixed contents accumulated at the bottom of the reservoir to be collected by opening the bottom valve.
4. Waste oil to be collected by opening the valve fitted above the cone. This collected waste oil (free from water) to be returned to the stores
5. Every liter of oil consumed and returned to be note in the lubrication schedule book.
6. Bottom sludge, oil and water mixed content can be given to PCM/Drill machine for lubrication.

**DO**             :

 ü Return the waste oil/grease back to the store.

ü Use oil tray while topping up any gearbox/equipment to avoid any spillage on ground.

ü Separately store the Oil/Grease traced material in separate bins and return to store as oil traced waste.

**Work permit to be taken for Gas prone areas like GCP, HBS &BLT.**

**CO/O2 monitor to be carried while attending the activity.**

**DO NOT**        :

 Ñ Carry out lubrication of running equipment or equipment which is not under shutdown without proper supervision of Engineer In charge.

Ñ Stand below the hanging structures.

Ñ Weld the lifting hooks on casted material. (It must be available in design itself)

Ñ Keep Material on slope while carrying out fabrication, erection, cutting job.

Ñ Keep any steel items like angles, channels, beams, plates, etc on platforms at height after completion of job.

**Amendement Record**

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| --- | --- | --- | --- |
| **Date** | **Manual Section Ref. & Para** | **Brief details of Revision** | **New Rev.** |
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| --- | --- | --- |
| **Prepared By:**  Digital head VAB | **Reviewed & Issued By:**  Management Representative | **Approved By:**  Mechanical and Asset Integrity Head VAB |
| **Signature:** | **Signature:** | **Signature:** |
| **Review Date:15/5/2023** | **Review Date:15/5/2023** | **Review Date:15/5/2023** |