**WORK INSTRUCTIONS FOR INSERTING LANCE IN RUNNING FURNACE**

**Responsibility: PCI Shift In charge**

**Overall responsibility: Shift In charge**

**Identified Hazards:**

1. Nonuse of PPE & work instruction.
2. Contact with Hot Blast/ hot surfaces.
3. Confined workspace.
4. Inadequate local lighting.
5. Mechanical impact.
6. Pulverized coal leakage.
7. Hose pipe fast couple/ jubilee clamp failure.
8. Improper Coordination
9. Damage to NRV due to blast leakage
10. Malfunctioning of NRV
11. BF Gas poisoning

**Aspect:**

* Spillage of Coal fines
* Noise generation
* Emission of coal dust

**Impact:**

* Land Contamination
* Noise Pollution
* Air Pollution

**Preparation:**

1. Check the respective lance line valve for proper opening and closing. Replace the valve if found passing.
2. Ensure blow pipe is clear and proper visibility from peep hole glass.
3. Ensure there is no CO gas presence near the blowpipe required to insert PCI lance.
4. Inform to Shift superintendent regarding the activity and ensure wind volume is reduced to 25000 Nm3/hr. prior to inserting of lance only if the cast was dry.
5. Inform to Mechanical and arrange all the Lances with hose pipe connections.
6. Ensure that hoses are getting coupled to lance pipes firmly.
7. Flush the lance and coal injection line with nitrogen, ensure that Coal line is free from any choke & moisture.
8. Open lance nitrogen valve and ensure free flow of nitrogen from the line. If the line is chocked, remove the flexible joint and clear the choke before inserting the lance. Later remove hose from lance just before inserting
9. Ensure that NRV is positioned properly.
10. Keep water (Fire accident) & Air (Cooling) hose ready.

**Procedure:**

1. Unauthorized operation or repair of any equipment is a punishable offence.
2. Ensure cast is dry before taking up the lance insertion activity
3. PCI shift in charge should ensure all the field operators wearing safety PPEs namely Helmet, safety shoes, safety Goggles, Dust mask, ear plug, Heat resistant hand gloves Leather jacket, Face shield, CO monitor etc.
4. Open Blanking cover to check if the NRV is holding or not by checking the blast leakage. If there is any blast leakage form NRV, tap the NRV to arrest the leakage.
5. Inserting the lance in lance port without hose
6. If NRV is holding, lock the inserted lance
7. Now connect the hose and ensure N2/CA flow through lance
8. Check for centering of lance.
9. Stop the N2 and change to Coal conveying.

**Problems and Solutions:**

1. If lance is not getting freely inside the blow pipe, remove the lance out and check for any bends or improper surface on the lance pipe.
2. If required change the lance pipe.
3. If blast leakage is observed from the lance and if it is not getting arrested even after tapping the NRV, inform to Shift superintendent and if required reduce the wind volume.
4. If blast leakage is observed after inserting the lance from any flanges, arrange for the compressed air hose pipe for cooling or spray water.

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| **Prepared By:**  Head –Production PID I | **Reviewed & Issued By:**  Management Representative | **Approved By:**  Head – Production PID |
| **Signature:** | **Signature:** | **Signature:** |
| **Date: 10.07.2023** | **Date: 10.07.2023** | **Date: 10.07.2023** |

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