**WORK INSTRUCTIONS FOR** **PCM NON DRAINABLE RUNNER PREPARATION/OPERATION**

**Responsibility: PCM In charge**

**Identified Hazards:**

1. Contact with hot metal
2. Slipping of personnel in the runner
3. Not using PPE
4. Improper house keeping
5. Inadequate local lighting
6. Crossing of metal runner

**Human Hazards**

1. Non adherence to Work instructions

**Significant Aspect:**

Heat generation

Debris generation

Usage of water

1. Unauthorized operation or repair of any equipment is a punishable offence.
2. Ensure that all personnel involved in the activity (Including contractor workmen) are trained in safe working procedures.)
3. Personnel working in the area (PCM runner preparation) must wear safety goggle, safety helmet, safety shoes, leg guard and full sleeve cotton/jean shirts cotton uniform provided while working.
4. While working on PCM 2 and PCM 4 runner ensure that respective furnace casting is not due for blowing
5. Lock the PCM with LOTO lock and key to be kept by the PCM operator. A wooden plank in case the PCM is hot is to be placed on the moulds before stepping on the PCM ,Cool the runner with the help of water .Ensure just required quantity of water is sprayed.
6. Ensure no workmen working below PCM runner.
7. Ensure the metal pool is been fully empty & then Loosen the runner jam and lift it slightly so as to create a gap between runner and metal jam for inserting link chain between them.
8. Link chain should be put with the help of lancing pipe only. (chances of burn injuries due to contact with hot runner jam if link chain is put by hands)
9. Insert link chain below the jam and tie.
10. Engage monorail crane hook with the chain and lift.
    1. Ensure that only trained operators are operating monorail crane.
    2. Loosen the jam sufficiently before inserting link chain.
    3. Oblong pulling of jam is prohibited.
    4. Ensure that Jam is not above the safe limit of the crane. (More than 3 ton)
    5. Runner jam should be removed in pieces whenever possible.
    6. While throwing runner pieces down ensure that no one is working below platform.
    7. Ensure that no person is standing below the load or the crane structure while jam lifting/swinging is in progress. PCM should be locked with LOTO lock if it is required to climb on the PCM at any moment during the course of activity.
11. Clean the runner fully.
12. Make fresh runner with hydrous clay.
13. Make proper spout
    1. Sufficient distance should be maintained from the PCM moulds.
    2. Proper positioning of the spout should be ensured to have minimum spillage.
    3. Should be sufficiently broad.
    4. Should be made fresh every alternate pouring irrespective of runner condition.
    5. Ensure that the cast is closed when clay is been dumped with the help wheel loader at PCM 2/3/4
14. Clay receiving area has to be barricaded after dumping the material.
15. Used lancing pipes are to be stacked properly, small pieces to be disposed in ladle
16. Ensure that runner jam Pieces should not get trapped into PCM link.

**Runner operation**

1. Unauthorized operation or repair of any equipment is a punishable offence
2. Operator should use all PPE viz. Safety overcoat, leg guard, safety shoe, Helmet with screen, Hand glove.
3. Operator should ensure proper pouring spout, proper dam for better siphoning, and hole of dam to be clear before starting pouring.
4. Before starting pouring Runner operator/pourer should ensure availability of trucks at the discharge end.
5. After starting pouring, runner operator/pourer should maintain proper flow of metal from spout to the PCM.
6. Runner to be cleaned only at the start of pouring and at the end of pouring and in between if required depend on quality of metal as Continuous cleaning may spoil the quality of pigs.
7. Debris which is getting filled up in metal pool to be cleared during pouring with the help of long lancing pipe
8. At the end of pouring or stoppage of pouring due to unavailability of trucks full debris and metal from metal pool to be covered with the help of rice husk so that no metal crust is form & also the siphon hole also must be covered.
9. Metal pool must be emptied once after every four pouring & any maintenance of PCM or any PCM related jobs.
10. Metal pool scooping must be done in ladle with specified the help of scooping spade with long handle
11. Before pushing debris operator should remove all clay from backside of metal pool to avoid splashing of metal all over.
12. After clearing metal pool operator should clear hole with the help of lancing pipe and should apply clay at backside of metal pool.

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| **Prepared By:**  Head – Production PID I | **Reviewed & Issued By:**  Management Representative | **Approved By:**  Head – Pig Iron Division |
| **Signature:** | **Signature:** | **Signature:** |
| **Date: 15.07.2022** | **Date: 15.07.2022** | **Date: 15.07.2022** |

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| 15.07.2022 | Work instructions for **PCM Non Drainable runner preparation/Operation** | Change in format | 07 |
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