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|  | **VEDANTA LIMITED –**  **VALUE ADDED BUSINESS** | **Format No.:** | **FRMT/MR/10** |
| **INTEGRATED MANAGEMENT SYSTEM** | **Revision Date:** | **10.07.2023** |
| **HAZARD IDENTIFICATION** | **Revision No.:** | **02** |
| **Page No.:** | **1 of 1** |

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| **Departmental Use Only** | |
| **Revision No: 04** | **Unit: PID1** |
| **Revision Date: 10.07.2023** | **Dept.: Production** |

A. Work activity information

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| **Sr.No.** | **Details** | **Remark** |
| 1) | Task being carried out, their duration and Frequency: | PCM Crane operation  Continuous |
| 2) | Location (s) where the work is carried out. | PCM area |
| 3) | Who normally/occasionally carried out the task? | Company employees & supervisors. |
| 4) | Who else may be affected by the work (For example visitors, subcontractors? the public) | Visitors |
| 5) | a) Has the personnel trained for performing the task  b) Any special training required | Yes  No |
| 6) | Is the written systems of work mandatory? If yes state, the procedure no. | Yes.  VL/IMS/PID1/PROD/WI/14 |
| 7) | Is the work permit required for the task? | No |
| 8) | Plant and machinery that may be used:  Eg : crusher, conveyor, crane, heavy earthing equipment, Truck etc, | 10 T, 12 T,50T & monorail crane & any other crane etc. |
| 9) | Any electrically operated hand tools are used | Yes |
| 10) | Manufacturers or supplier’s instructions for operation and maintenance plant machinery and powered hand tools are available or not: | yes |
| 11) | Chain block, tools and shackles such as wire rope, hydraulic jack etc are used. | No |
| 12) | What materials are handled? Size, shape, surface character and weight of materials that may be handled: | Hot metal Ladle |
| 13) | Is the material is required to be moved by hand. If yes Distance and heights of the place where materials have to move by hand. | No |
| 14) | Services used Eg: compressed air, oxygen, acetylene,  LPG gas, hydraulic oil, welding electrode for welding | NIL |
| 15) | Physical form of substances encountered during the work (For example fume, gas, vapour, liquid, dust/powder, solid): | Hot metal |
| 16) | Content and recommendations of safety data sheets relating to substances used or encountered:  (This is applicable in case of chemical material) | NA |
| 17) | a) Relevant acts, regulations and standards relating to the work being done, the plant and machinery used, and the materials used or encountered:  b) Is the activity is reviewed for compliance to statutory requirement | Factory Act  Yes |
| 18) | What is the data (s) required to be monitored during the activity and the frequency of monitoring? | NIL |
| 19) | Any information available from within and outside the organization on incident, accident and ill health experience associated with the work being done, equipment and substances used: | Yes |

2. From the above activity information hazards are to be identified and recorded below using Appendix 'A' of SP/41

1. 05.02.2003, PCM-4 launder crane rope snapped due malfunctioning of hoist
2. 16.10.2003, hot metal crane started coming down by itself-Bhanudas parab
3. 28.11.2003, 10T crane hook bang the cast house barricade
4. 09.03.2005, 10T crane hook hit the operator in casthouse-Gani Naik
5. On 20.07.2005, BF1 Metal launder sheared off while placing the ladle
6. 05.06.2005, wheel loader damaged the PB station of hot metal crane (BF1).
7. 18.11.2005 while transferring hot metal from one ladle to other ladle 40t hook came out of trunnion and the entire metal spilled on the ground.
8. On 06.12.2005, Ladle placement is very difficult from the crane cabin.
9. On 11.12.09, at about 10.45 am, PCM 3 monorail hoist was being used for removal of metal jam near PCM 3 pouring spout. When the jam was about to be lifted, the wire rope of the hoist snapped at 2 portions and the pulley along with the hook remained on the jam chain. There was no injury to any person. When checked, the wire rope strands were found to be corroded at the inside center portion of the wire rope where it had snapped.
10. On 13.02.2010 While removing the jam from the PCM 3 runner, the monorail crane hook got entangled with the nearby platform (platform on ladle transfer car side) due to which the platform got slightly lifted upwards. The welding of the supporting structure has cracked, and the bricks have come out.
11. On 25\04\2010 in the first shift at around 08:00hrs. hot metal crane operator Mr. Mohandas T Fadte during LT of BF-1 50T HMC towards BF-1 side, crane arm struck the cabin of wheel loader resulting in breaking of rear-view mirror and slight damage to control desk border. Operator had placed BF-1 Hot metal ladle in ladle transfer car area after emptying half ladle in BF-2 ladle. He was taking back empty HMC towards BF-1 since BF-2 metal to be mixed in this half ladle. At this point of time wheel loader operator after emptying hydrous clay on pcm-3 platform was reversing the machine when above incident occurred. Mr. Mohandas Fadte was operating the crane from BF-2 DS unit canister platform area. He was immediately taken to dispensary for alcohol test which was negative.
12. On 09/07/13 Third shift at around 05:40 hrs. When pourer Mr. Bhanudas parab has kept ladle on the ladle car and was taking crane toward BF#1 side (Long travel). 50T hook hit the column toward 27 ML and then hit the extended platform of PCM # 3. Extended platform has fallen down.
13. On 10.07.2020 at around 21:00:00 hrs while shifting scrap moulds from PCM # 4 area W/L(GA07E5549) got lifted from backside and cabin got struck to the overhead platform, Cabin got slightly bend toward one side/L operator (Mr Basudev) alcohol check and found negative. He has resumed on duty after medical check-up. No injury and damage to property.
14. On 23.07.2021 at around 23:55 hrs. Mr. Saji Kamat, Hot metal crane operator enters the PCM-2 pouring cabin for pouring of metal. He was about to start the pouring, Chiller which was mounted on cabin celling fallen down and rested on ceiling fan. Since it was rested on mounted fan no injury happened to Operator.

1. FCU was fastened on the plywood as there was no provision of taking firm support from cabin roof due to the non-standard design of cabin.

2. There was no sheet piece/holes at roof of the cabin through which graphite and dust entry found. This graphite accumulated on the plywood.

Contributory Cause:

1. Water dripping from HMC bay roof sheet on the PCM2 Cabin

CAPA: 3. PCM2 Cabin to be replaced

**Hazards identified**

1. Ladle falling
2. Impact of ladle & contact with hot ladle
3. Brightness
4. Impact of 10 t crane to the people working in the cast house
5. Hitting the crane pendent by a wheel loader
6. Impact of crane to metal launder
7. Fall of material from top
8. Contact with hot metal
9. Impact of ladle
10. Human Behavior -Not follow the work instruction
11. Human Behavior -Improper house keeping
12. Inadequate local lighting
13. Human Behavior -Ignoring the person & equipment on the way of crane operation
14. Burning due to contact with hot ladle
15. Vision impairment due to glare at hot metal
16. Injuries due to fall of material from top
17. Snapping of monorail crane wire rope
18. Monorail crane hook getting entangled with structure
19. Damage to property during crane movement/crane collision with other structures

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| **Prepared By:** | **Reviewed By:** |
| **Signature:** | **Signature:** |
| **Review Date: 10.07.2023** | **Review Date: 10.07.2023** |