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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.:** | **03** |
| **Page No.:** | **1 of 1** |

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| **Departmental Use Only** | |
| **Revision No: 03** | **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: | Gas cleaning System  Continuous |
| 2) | Location (s) where the work is carried out. | GCS 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/11 |
| 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, | Motors & pumps |
| 9) | Any electrically operated hand tools are used | NIL |
| 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: | BF Gas |
| 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. | NIL |
| 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): | Water & BF Gas |
| 16) | Content and recommendations of safety data sheets relating to substances used or encountered:  (This is applicable in case of chemical material) | NIL |
| 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. 27.11.2003, hot water splashed around the area while taking the gas sample-Rajesh Amonkar
2. 01.04.2005 at 10.30hrs. while cleaning the underground tunnel near PCM-3 water rushed to the tunnel
3. CO concentration near BF1’s Glendon area, Staircase near control room and staircase going towards furnace top is reaching up to 150-300 ppm in regular intervals was observed in night shift. Same was shown to Shift SS Mr. Sandeep Naik.
4. On 21st June it was observed that all entry gates leading to GCS, HBS of both furnaces of PID-1 were found without access control.

Causes: Rusting of locks due to monsoon showers

CAPA: Spare locks to be procured and replace as and when rusted

1. On 06.04.2018 around 11:00 hrs mild explosion occurred in BF1 GCS during planned furnace shutdown. There is no injury to anyone.
2. On 17.08.2022, BF 2 was under process of taking shutdown for arresting gas leakage at dust catcher. wind volume was made minimum by closing IVC and was about to open bleeder at that time one person Name Mr. Anil Yadav from m/s vaaman involved in preparatory job for arresting leakage complaint of uncomfortable so immediately he was taken to dispensary. at dispensary after taking treatment, he resumed his duty.

Root cause: 1. Violation of SOP (person entered gas prone area without opening ensuring bleeder is open)

2.Access control gate was not locked

Contributory causes /circumstances

1.Online CO monitor not available in nearby vicinity

2.Gas leakage from discharge point as Bell system not functioning properly

CAPA:

1.All access control gates to remain locked all the time and issuance of Key from control room as per SOP

2.CO monitors to be installed nearby area as it is highly gas prone area and frequent man movement is there from front and back road, to explore online CO monitor with reading display which can be installed at entry position of road to give caution warning to people entering on that road

3.Job specific trainings to be ensured for all critical operations

4.SOP and HIRA to be reviewed

**Hazards identified**

1. BF Gas poisoning
2. Fire and Explosion in the gas line
3. Contact with hot water while cleaning the underground GCS tunnel
4. Sprain while bypassing slag granulation
5. Fall of person
6. Human Behavior -Nonuse of PPE
7. Human Behavior -Improper house keeping
8. Human Behavior -Not carrying CO detector
9. Burns due to contact with hot water/surface
10. Mild explosion inside GCS during furnace shutdown
11. Dust generation
12. Inadequate local lighting
13. Dumping flue dust at ground
14. Ignoring person around the dust catcher before dumping the flue dust
15. Dust inhalation
16. contact with fire while welding
17. Human behaviour – Not following work instructions

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