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| Logo  Description automatically generated | **VEDANTA LIMITED –**  **VALUE ADDED BUSINESS** | **Format No.:** | **FRMT/MR/10** |
| **INTEGRATED MANAGEMENT SYSTEM** | **Revision Date:** | **04.04.2022** |
| **HAZARD IDENTIFICATION** | **Revision No.:** | **02** |
| **Page No.:** | **1 of 1** |

**Rev No: 04** Unit: PP-1

Date: 07.04.2022 Dept: Mechanical

A. Work activity information : Boiler tube repair works.

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| **Sr. No.** | **Details** | **Remark** |
| 1) | Task being carried out, their duration and Frequency: | Boiler tube repair/replace works,  Duration more than 24 hrs  During Annual shutdown. |
| 2) | Location (s) where the work is carried out. | boilers |
| 3) | Who normally/occasionally carried out the task | Company employee operator/contractor |
| 4) | Who else may be affected by the work (For example visitors, subcontractors, the public) | contractor |
| 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. | WI/MAINT/08 |
| 7) | Is the work permit required for the task | yes |
| 8) | Plant and machinery that may be used:  Eg : crusher, conveyor, crane, heavy earthing equipment, Truck etc, | Welding machine, cutting set, grinder |
| 9) | Any electrically operated hand tools are used | Welding machine, cut off machine, grinder, 24volt supply |
| 10) | Manufacturer’s or supplier’s instructions for operation and maintenance plant machinery and powered hand tools are available or not: | Use of IBR welder as per boiler act |
| 11) | Chain block, tools and shackles such as wire rope, hydraulic jack etc are used. | yes |
| 12) | What materials are handled? Size, shape, surface character and weight of materials that may be handled: | Welding machine, tube,grinder,cutting set ets max-25 kg |
| 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. | Yes  25mtrs |
| 14) | Services used Eg: compressed air, oxygen, acetylene,  LPG gas, hydraulic oil, welding electrode for welding | Oxygen, acetylene, electrode |
| 15) | Physical form of substances encountered during the work (For example fume, gas, vapour, liquid, dust/powder, solid): | Fumes, CO 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 |
| 18) | What is the data (s) required to be monitored during the activity and the frequency of monitoring. | Welding cable, cutting hose, co level at work area |
| 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,  FAI on 03.03.14. Helper of M/S Gurukrupa was shifting scrap economizer tubes from Boiler-2. In the process of shifting his thumb of right hand got impinged between the tubes resulting in a minor cut |

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

**Hazards identified**

1. **Mechanical hazard -**

Falling of objects, tools and other material from height

Material handling heavy load and improper posture

Entanglement of material

1. **Physical hazard**

Contact, Impact, trapping between two object,

1. **Human behaviours**

Non usage of PPE, hydra ooperator nature, alcoholism, casual approach.

Fire due to fall of sparks welding / gas cutting

Human behavior aspect of operators : Operator nature, alcoholism, casual approach & non usage of PPEs.

1. **Chemical hazard** - Fire & Explosion, CO monitor to be use while working in BFG system.

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**Physical isolation/blanking to be provided to carry any activity inside the boiler or BFG gas line system by isolating complete BF gas sources from Pig iron Plant.**

**LTI - On 06/02/2022 at 12:00 PM 3 Anish Scaffolding workmen Mr. Manu Nag, Mr. Kunjay Naik, Mr. Lambodhar Naik, Mr. Sri ram (supervisor) who were engaged in scaffold erection as a part of boiler 1 tube replacement job became victim of gas leak. While, Mr. Manu Nag and Mr. Kunjay Naik resumed duty post observation at dispensary. Mr. Lambodhar Naik was referred to GMC Bambolim for further medical care where he was kept under observation for 24 Hrs and he joined duties next day**

**Corrective action and preventive action on above LTI**

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| Sl no. | Recommendations | Responsibility |
| 1 | SOP to be revised stating that whenever jobs in pressure parts (BFG line, steam line, water line, etc) are taken up positive isolation such as blanking/ provision of Goggle valve should be done | Nitin Gaikwad, Deepak Kudalkar  & Anand Ghadigaonkar |
| 2 | Steam purging system should be installed at PP | Deepak Kudalkar |
| 3 | Pressure transmitter should be installed at strategic location so as to determine the line pressure of BFG entering PP | Vengatesan |
| 4 | Explore the possibility of providing Purging vent valve provision should be provided | Deepak Kudalkar |
| 5 | U seal and drip pots inner parts may be checked at desired intervals by dismantling by preparing schedule | Nitin Gaikwad & Deepak Kudalkar |
| 6 | In gas prone areas whenever job is carried out at multiple levels at least one portable CO monitor should be present with people working on each level | Nitin Gaikwad & Deepak Kudalkar |
| 7 | Explore the possibility of changing the Boiler U seal design at PP if required | Deepak Kudalkar & Nitin Gaikwad |
| 8 | More online CO sensors should be fitted at strategic locations | Vengatesan |
| 9 | Portable self powered CO monitors to be procured that has audio/visual alarm with a wireless communication to control room, | Vengatesan |

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| **Prepared By:** | **Reviewed By:** |
| **Signature:** | **Signature:** |
| **Date: 07.04.2022** | **Date: 07.04.2022** |