**WORK INSTRUCTIONS FOR\_BLAST FURNACE CORE DRILLING**

**Responsibility:**

* Objective : - Drilling of the furnace refractory to provide steam lances in the furnace shell.
* Scope : - Blast furnace
* Ref. : - Blast Furnace Drawings, Safety Standards
* Responsibility : - Production Engineer, Refractory Engineer, Supervisor & Contractor Men.

**Aspect**:

1. Dust generation
2. BF Gas leakages.

**Impacts**:

1. Air Pollution
2. Land Contamination
3. Health Impacts
4. Work Environment

**Identified Hazards**:

1. BF Gas poisoning.
2. Contact with hot metal, hot coke, dust, graphite, fire.
3. Catch of fire at core drilling point.
4. Explosion inside the furnace due to water leakages.
5. Contact with fumes, hot water.
6. Dust inhalation from castable powder.
7. Electric shock while operating the electric drilling Machine.
8. Human behaviour- Improper operation of the electric drilling Machine
9. Improper working platform
10. Use of improper tools
11. All persons should wear PPE.
12. Unauthorised operation or repair of any equipment is a punishable offence.
13. Cut the shell after furnace shut down has taken, shell cooling stoppage and after getting clearance from Production.
14. Clear the Ramming mass with crowbar.
15. Make a hole of 40 mm with electric Drilling machine / Hilti.
16. Lance the skull which is formed in front of the brick if it is found. (For lancing, please get clearance from the furnace top people who are working at bleeder, bells, back draft valve, and GCS system including dust catcher).
17. Insert the steam pipe inside the refractory wall leaving around 30 mm refractory brick from the edge of the steam pipe (pipe shouldn’t be protruding inside the furnace).
18. Fill the pipe hole with hydrous clay.
19. Put the flange outside the shell.
20. Fill the castable around the pipe.
21. Weld the pipe with shell.
22. Blank the pipe.
23. Ensure there is no leakage from the shell.

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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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| **Amendment Record** | | | |
| **Revision date** | **Manual Section ref. and para** | **Brief details of revision** | **New Revision No.** |
| 15.07.2022 | Procedure for Blast furnace core drilling | Hazard identified 9.10 | 05 |
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