[CHECKING THERMOCOUPLES MOUNTED IN HEARTH/TUYERE/STACK/CROSSFLOW AREAS OF THE BLAST FURNACE.](D:\\d drive\\Paresh\\BF1 173 m3 After Relining\\WI & HIRA\\Temporary Internet Files\\Content.IE5\\M3  MASTER LIST WORK INST Inst..doc)

Objective: To check thermocouples mounted in Hearth/ Tuyere/Stack & Cross flow areas of the Blast Furnace.

**Scope:** This procedure applies to thermocouples mounted in the Hearth/Tuyere

/stack & Crossflow areas only.

**Reference:** Thermocouple Standard Chart table K Type

**Performance Criteria** : Temperature readings of hearth,Tuyers,stack & Crossflow

**Aspect for the Activity** : Waste generation

**Identification of Hazards:**

**Chemical Hazard:** CO Gas poisoning, dust, Graphite

**Physical Hazard:** Steam, High temperature, Contact with metal, Hot Surface

**Mechanical Hazard**: Trip & Fall

**Hazard due to Human Behaviour/Human error:**

Not adhering to WI/ PPE, Alcoholism, Touching thermocouple tip with bare hands, Crossing hearth trough without walkway ( Jumping), Entering hearth area/Stack/Crossflow area without informing control room engineer/Cast House Engineer.

**Refer: RISK /INST/03 & RISK/INST/17**

## Responsibility: Sr. Engineer Instrumentation/Associate / Inst Technician

**PROCEDURE:**

1. Inform control room & take permission from process or take permit if required.
2. Ensure that the cast is not open before starting the job. Don’t use gumboots while working in cast house/high temperature area.
3. Check for CO gas PPM in the area within safe limits using CO monitor it should be less than 50 PPM.(Use certified CO Monitor)
4. Check for proper illumination in the area.
5. Minimum 2 people should enter the hearth/Stack & Crossflow area.
6. Use heat resistant hand gloves if required.
7. Make particular changes in JB diagrams if any modification done.
8. The CO gas concentration should be monitored continuously throughout the course of work.
9. Check steam concentration in the area for visibility.
10. Inform production to minimize shell cooling water for particular thermocouple area if required.
11. If above conditions are not met refrain from working in the area else proceed for the work.
12. Avoid contact with high temperature surrounding areas.
13. Check the thermocouple, note down the millivolt & cross check with standard TC chart.
14. Incase the Thermocouple is faulty, same to be replaced as per the OEM design and connection to be done and verified the mV reading with Standard chart.
15. Inform production after the job is performed. & clear the permit.

**Amendement Record**

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| **Date** | **Manual Section Ref. & Para** | **Brief details of Revision** | **New Rev.** |
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| **Prepared By:**  Head Instrumentation PID1 | **Reviewed & Issued By:**  Management Representative | **Approved By:**  Head – Electrical & Instrumentation PID1 |
| **Signature:** | **Signature:** | **Signature:** |
| **Review Date:** 13.09.2023 | **Review Date:** 13.09.2023 | **Review Date:** 13.09.2023 |
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