**WORK INSTRUCTIONS FOR FLARE STACK ISOLATION OF BF2**

Responsibility: Shift Superintendent

Criteria: Safe isolation of flare stack

**Identified Hazards:**

1. BF Gas poisoning at top of the flare stack.
2. Failure to keep relief valves open
3. Water seal failure due to pressurizing of line.
4. Unintentional dropping of water seal due to human error.
5. Miscommunication between engineers
6. Fall of person and getting hurt while running in hurry
7. Fire & explosion in the gas line.
8. Not adhering to work instruction/use of PPE
9. Improper house keeping
10. Inadequate local lighting
11. LOTO system not being followed
12. Fall of person from height
13. Non adherence of WI
14. Flare stack drip pot failure

Significant Aspect:

1. Emission of BFG

2. Usage of water

FURNACE 2 FLARE STACK ISOLATION WITH OR WITHOUT BF2 SHUTDOWN

1. Unauthorized operation or repair of any equipment is a punishable offence
2. Ensure BF1 and GEL flare stack valves is in Auto mode with line pressure setting of 750 mmwc and 850mmwc
3. Ensure BF2 flare stack main water sealed and overflow is maintained, and lockout pad is put around the water sealing valve wheel and locked.
4. Ensure CO monitor is used while water sealing gas line.
5. Steam purges the flare stack gas line till conspicuous steam is noticed from top of the flare stack.
6. Ensure steam purging valve to flare stack gas line is kept close.
7. Ensure gas line pressure on PID control in bf2 control room is displaying Zero after water sealing
8. Ensure flare stack valve (Actuator) is kept closed after water sealing in manual mode before sending any person on top (flare stack).
9. Ensure 80 NB gas line to burner is kept closed
10. Electrical supply to the burner is isolated before going on top of the flare stack.
11. Ensure all service departments require to work on the flare stack put their lock on all the lockout pad require to be kept water sealed in course of the job and retain the key with self-till completion of the job.
12. Ensure all water seal to be lock out by service department should be mentioned in the work permit.
13. Ensure service personnel’s to be equipped with two CO monitors while working on flare stack.
14. Ensure that there is no surge in the gas line at water seals and keep one man with walkie talky to have constant watch over the overflow from the seals till people are working at top of the flare stack and incase of water seal is broken people working on top to be alerted to move down.
15. In case of any gas leakage due to breaking of water seal reduce the wind volume immediately. Priority should be to bring down the people from top safely.
16. Ensure GEL and BF1 Flare stack are online.

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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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