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

Responsibility: Shift Superintendent

**Identified Hazards:**

1. BF Gas poisoning
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
8. Not adhering to work instruction/use of PPE
9. LOTO system not being followed
10. Improper house keeping
11. Inadequate local lighting

Significant Aspect:

1. Emission of BFG

2. Usage of water

ISOLATION OF GEL FLARE STACK FOR RECTIFYING THE BURNER ON TOP

1. Unauthorized operation or repair of any equipment is a punishable offence.

2. Ensure either of the furnace is under shutdown, incase BF1 is running and BF2 shutdown gas line connectivity from BF1 to BF2 flare stack to be maintained by keeping BF2 mainline water seal open and isolating GCS by water sealing saturator.

3. Ensure BF2 flare stack valve is in Auto mode with line pressure setting at 750mm~850mmWC

4. Inform GEL about drop in gas line pressure

5. Ensure BF2 flare stack burner is healthy and flaring

6. Wind to be reduced if any of the flare stack is not flaring which can happen in case GEL trips, or sudden isolation of stoves

7. Ensure water sealing of gas line at following

i). BF1 flare stack main water seal, and lockout pad is put around the water sealing valve wheel and locked and ensure slight continuous overflow of water from the seal.

ii). Both the seals of bypass gas line to bf1 flare stack and lockout pad is put around the water sealing valve wheel and locked and ensure slight continuous over flow of water from the seal.

iii) Additional water seal to GEL gas line and lockout pad is put around the water sealing valve wheel and locked and ensure slight continuous overflow of water from the seal.

iv) GEL flare stack main water seal and lockout pad is put around the water sealing valve wheel and locked and ensure slight continuous overflow of water from the seal.

8. Ensure CO monitor is used while water sealing gas line

9. Ensure overflow of water is maintained from all seals.

10. 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.

11. Ensure all water seal to be lock out by service department should be mentioned in the work permit.

12. Total five water seals connecting to both flare stack as mentioned above to be ensured are water sealed and overflowing

13. Ensure gas line pressure on PID control is displaying Zero for both flare stack after water sealing.

14. Ensure both flare stack valves (Actuator) are kept closed after water sealing in manual mode including bypass valves, before sending any person on top (flare stack).

15. Ensure 80 NB gas line to burner is kept closed

16. Ensure BF1 flare stack is steam purged till conspicuous steam is noticed from top of the flare stack and GEL flare stack is air purged for minimum 30 min before handing over.

17. Ensure steam purging valve to flare stack gas line is kept close.

18. Electrical supply to the burner is isolated before going on top of the flare stack.

19. 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.

20. 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.

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| Prepared By:  Head – Pig Iron Division | Reviewed & Issued By:  Management Representative | Approved By:  Head – PID I |
| Signature: | Signature: | Signature: |
| Date: **15.07.2022** | Date: **15.07.2022** | Date: **15.07.2022** |

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