**SOP FOR**

1. **PURPOSE: Safe working procedure for heating arrangement of bottom cone of all silos in GCP area.**
2. **SCOPE:** **Gas Cleaning Plant.**
3. **RESPONSIBILITY: Engineer In charge and workmen on job**
4. **PROCEDURE: HEATING ARRANGEMENT OF BOTTOM CONE FOR ALL THE GCP SILOS.**

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* **PPEs to be used:**
* Helmet, Safety shoes, Hand gloves, Dust mask, safety harness and safety goggle (Depending upon type of job), Co Monitor

###### Aspect-Impact

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| **Oil Spillage** | Land contamination |
| **Oil traced waste generation** | Land contamination & Resource Depletion |
| **Fire** | Air pollution SP42 |
| **Scrap generation** | Resource depletion |
| **Fumes** | Health |

Hazards identified

Physical Hazard - Pressure, temperature

Mechanical Hazard - Trapping between two objects,

Fall of material, hammer, tools, slinged items, bolts, wedges

Fall of person from platform, height

Entanglement

Impact of moving / slinged items

Electrical hazard - Shock

Chemical hazard - CO gas poisoning & Fire

Behavioral hazard - Workmen under the influence of alcohol, Violation of procedure, Not wearing PPE’s, Casual approach of operator, Not concentrating while operating machine, Horseplay.

**Work:**

1. Take permission from production department for the silo selected for the task.
2. Take electrical shut down of Shut off Valves & Google valves (Both inlet & outlet) of the corresponding silo
3. Ask operation for purging the required Silo with nitrogen, & ensure that there no BF gas present before start of the work. Ensure that silo is totally dust free.
4. Close the pneumatic dust unloading valve, and remove the pneumatic hoses so that there is no operation of valve before the work is completed
5. Take work permit from control room with clearance (signature) from S.S./Production
6. 2 nos CO monitors to be kept continuously by the persons who will be working on the job
7. Open the manholes (both inlet & outlet)
8. Again ensure that there is no BF gas present inside silo and working area
9. Ensure that gas bleed valve/relief valve of that particular silo is open all the time, and electrical s/d to be taken in open condition
10. While Welding/Gas Cutting on the shell following precautions to be taken:
    1. Take proper earthing for that particular silo directly from machine
    2. Do not weld on any of the other silos, other than the silo on which the work is carried out
    3. Barricade that particular silo on which the welding work is to be carried out
    4. Only approved & authorized welders should work on that particular silo
    5. Welders should not be preferably changed till the entire job of a particular silo is completed. In case the welder has to be changed/new welder has to be used, then that welder has to be briefed about the safety hazards & the nature of job, and also the Silo No. on which the work is to be carried out on that particular day. Also he has to be authorized & approved welder.
    6. Supervisor should be vigilant all the time
    7. In case the work has to be carried out at night, then supervisor has to be present throughout the job
    8. Welding machine has be put off when there is no welding work in between
    9. Precautions to be taken that PC fittings and other equipment’s are not getting damaged during welding/cutting
11. Do not block the passage all around the silo as other silos will be in process
12. In case of high gas level in surrounding area, or any other emergency, total job has to be stopped and all the persons should vacate the area to safer place
13. In case the work is not over within the stipulated time mentioned on work permit, then work permit has to be extended or new work permit has to be taken
14. Follow the safe working procedure as per procedure SP44
15. Proper housekeeping to be done on everyday basis as other silos will be in operation
16. After the job is completed, pressure testing to be done for checking the leakage from welding joints
17. If trials are ok, then clear the electrical shut down, connect back the pneumatic hoses and ask operation person in-charge to normalize the system
18. Clear the work permit and give clearance to the production
19. Subsequently insulation work can be carried out by separate procedure

**General Instructions:**

1. Carry out the housekeeping activity as per [WI/MAINT/91](C:\\Users\\HP\\AppData\\Local\\Temp\\Temp1_SOPHIRA.zip\\SOP&HIRA\\IMS SOP\\WIMAINT91 HOUSE KEEPING.doc)
2. Refer work procedure [WI/MAINT/12](C:\\Users\\HP\\AppData\\Local\\Temp\\Temp1_SOPHIRA.zip\\SOP&HIRA\\IMS SOP\\WIMAINT12 MATERIAL HANDLING .doc) for handling valves and filter.
3. Welding procedure as per SP 44 E
4. Please refer WI/MAINT/94 for fabrication, erection and dismantling
5. Use certified cutting torch set.
6. Use certified slings, D-shackles, Grinding M/c, etc.
7. Do not stand below the load when it is hoisted.
8. Use all PPE-s
9. Use proper tools & tackles like spanners etc.

**DO:**

1. For working on the silo, ask operations to purge the required silo with nitrogen & take proper clearance before start of this job
2. Confirm that there is no presence of gas beyond acceptable limit in the vicinity of working area
3. Take CO detector and monitor the CO level continuously while working in this area
4. Everyday proper housekeeping to be done at the end of work as this is a continuous working area (other silos are in line)
5. Only authorised welders/cutters should be working in this area for this job (i.e. after thorough safety briefing on the working procedure & the hazards involved)

**DO NOT:**

1. Do not start welding/cutting before taking proper clearance from production (after purging the required silo with nitrogen)
2. Do not weld on any other silos, other than the required silo (where all the procedure is followed for taking clearance to work)
3. Do not keep welding machine ‘ON’ when the work is stopped



**REFERENCES: Operation & Maintenance manual.**

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| **Prepared By:**  Area Engineer | **Reviewed & Issued By:**  Management Representative | **Approved By:**  Mechanical Head |
| **Signature:** | **Signature:** | **Signature:** |
| **Review Date: 15.11.2020** | **Review Date: 15.11.2020** | **Review Date: 15.11.2020** |