1. **Roles, Responsibilities, Accountability and Authority of Chief Operating Officer PID**

**Educational qualification**: Degree in Metallurgy Engg./Diploma in Engg. with 15years experience in Blast Furnace Operation.

**Skilled required**: Handling blast furnace abnormalities, Strong analytical skill, interpersonal skill, troubleshooting skill.

**Authority, responsibility**: Ensuring the budgeted production & quality. Monitoring of process control & improvement in productivity; Inventory control, Enforcing energy efficient procedures and energy efficient project and energy reduction for production of pig iron enforcing resources required for those energy saving projects.

**Expenses controlled**: Controlling & monitoring of third party billing. Inventory control.

**Decision making**: Timely action for controlling down time & increase in productivity.

**Managerial control**: Managerial skill is very much necessary for this position.

**Span of teams**: Entire Production dept. staff, workmen. & co-ordination with

Service department.

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**External interaction**: With suppliers & third party service provider.

**Key /Major activities & Roles with priority**

1. Prepare the annual production budget and achieve the grade wise production.
2. Prepare the Raw Material budget based on the production plan.
3. Oversee the pig iron production process.
4. Plan the monthly preventive maintenance shutdown in consultation with all the service departments.
5. Implementing QEHS, EnMS at Production & Development department of Pig Iron Plant
6. Updating QEHS, EnMS Manual. Maintain records of QEHS, EnMS Management System.
7. Ensure adherence to QEHS, EnMS system procedures & Departmental work Instructions.
8. Monitor QEHS Process Performance,
9. Determine Competence requirement of Dept. Personnel for requirements of QEHS, EnMS System.
10. Ensuring statutory requirement of the process under various acts.
11. Proposing objectives and targets for significant aspects.
12. Review & Preparation of standard work procedures.
13. Ensuring good housekeeping and safe working environment.
14. Attend Management review meetings and ensure that action plans arising out of the management review meetings are carried out
15. Ensuring good housekeeping & safe working environment,
16. Optimize the yield.
17. Identifying Training needs /other action to satisfy competence needs.
18. Developing new products and process for cost effectiveness and improvement in safety.
19. Monitor Compliance to Legal requirement.
20. Identifying and updating Environmental Aspects & Impact.
21. Identification of Hazards, Risk Assessment and Control of Risk.
22. Identifying significant energy consuming sources, monitoring significant energy source, planning energy as per the base line, EnPI, taking objects, targets and performing those objects as per the plan.
23. Corrective /Preventative action implementation for non-conformance related to QEHS, EnMS.
24. Implementation of TPM
25. Implementation of AO
26. Involvement in investigation of all significant RCA’s
27. Work towards achieving FIP targets
28. **Roles, Responsibilities, Accountability and Authority of Head Operation – PIDI**

**Educational qualification**: Degree in Metallurgy Engg. /Diploma in Engg with 10years experience in Blast Furnace Operation

**Skilled required**: Handling blast furnace abnormalities, Strong analytical skill

**Authority, responsibility**: Monitoring of process control & improvement in productivity Inventory control, Enforcing energy efficient procedures and energy efficient project and energy reduction for production of pig iron. Enforcing resources required for those energy saving projects.

**Expenses controlled**: Controlling & monitoring of third party billing. Inventory control.

**Decision making**: Timely action for controlling down time & increase productivity.

**Managerial control**: Managerial skill is very much necessary for this position.

**Span of teams**: Entire Production dept. staff, workmen. & co-ordination with service dept.

**External interaction**: With suppliers & third party service provider.

**Key /Major activities & Roles with priority**

1. Achieve production as per BP
2. Achieve budgeted OEE
3. Planning of shutdowns, compliance to job list
4. Planning & Process monitoring
5. Coke rate & PCI injection as per budget
6. Reconciliation of input material
7. Skull as per budget
8. Contractor's review, certification of bills, ensuring compliance.
9. Ensure Contractor engagement; competency improvement by training.
10. Driving Continual improvement projects: identification & execution for improvement of Productivity & availability of Furnace; Driving FIP, SGA, Kaizen in a structured manner
11. Improvement in Safety performance & culture: ensuring VFL rounds, safety interaction, closure of safety observations
12. Driving AO & improvement of score; improvement in housekeeping & 5S' score
13. Attending war room and discuss the daily KPI’s & breakdowns
14. Review of AO war room MOM action points
15. Ensure RCA’s done for BD’s / process deviations as per the criteria & relevant CAPA’s are identified & implemented.
16. Successful completion of IMS & VSAP audits
17. Water consumption monitoring & Compliance; optimization & conservation
18. Vedanta Safety Standards
19. Environment & legal compliance; plantation drive
20. Staff & company workmen management & review
21. interaction with the team members, conduct training; Handling of grievances & develop healthy IR
22. Monitoring of overall day to day operation of blast furnace, its parameters; reviewing & taking appropriate action for any deviation
23. Inventory management- regular monitoring, review & control for optimization.
24. ensuring compliance to checklists on daily basis
25. ensuring good housekeeping in all areas
26. Ensuring all SOP's are reviewed as per schedule; incorporation & implementation of CAPA's
27. Improvement in productivity of furnaces.
28. Ensuring safe working conditions
29. Responsible for reducing cost of iron making
30. Daily work management, safety & environment initiative.
31. Trouble shooting for process variation.
32. Achieving production targets & grade wise production
33. Reduction in operational down time.
34. Burden correction
35. Monitoring & planning of reduction in skull generation.
36. Monitoring & planning of reduction in rough top pig.
37. Inventory level monitoring & control
38. Co-ordination with service department.
39. Monitoring and review of third party services.
40. Implementing QEHS, EnMS at Production department of Pig Iron Plant
41. Reviewing & Identifying new activities for HIRA & Aspect / Impact
42. Updating QEHS, EnMS Dept. Manual.
43. Compliance of Statutory requirement under various acts
44. Monitoring Key Environmental parameters
45. Reviewing & monitoring of objectives and targets for significant aspects.
46. Review & Preparation of standard work procedure
47. Ensuring good housekeeping and safe working environment
48. Attend Management review meetings and ensure that action plans arising out of the management review meetings are carried out
49. Ensure adherence to QEHS, EnMS system procedures & Departmental work Instructions.
50. Identifying significant energy consuming sources, monitoring significant energy source, planning energy as per the base line, EnPI, taking objects, targets and performing those objects as per the plan.
51. Active involvement in conducting mock drills and familiarizing the subordinates about QEHS, EnMS work instructions
52. Report non-conformance observed to departmental head.
53. Corrective /Preventative action implementation for non-conformance related to QEHS, EnMS
54. IMS documentation such as Audits, Environmental parameter reports to be reviewed monthly.
55. **Roles, Responsibilities, Accountability and Authority of Dy. Head Operation BF1 & 2**

**Educational qualification**: Degree in Metallurgy Engg./Diploma in Engg with 10years experience in Blast Furnace Operation

**Skilled required**: Handling blast furnace abnormalities, Strong analytical skill

**Authority, responsibility**: Monitoring of process control & improvement in productivity, Inventory control, Enforcing energy efficient procedures and energy efficient project and energy reduction for production of pig iron. Enforcing resources required for those energy saving projects.

**Expenses controlled**: Controlling & monitoring of third party billing. Inventory control.

**Decision making**: Timely action for controlling down time & increase productivity.

**Managerial control**: Managerial skill is very much necessary for this position.

**Span of teams**: Entire Production dept. staff, workmen. & co-ordination with service dept

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**External interaction**: With suppliers & third party service provider.

**Key /Major activities & Roles with priority**

* 1. Ensuring Continuous & smooth running of Furnace
  2. Zero off grade production by co-ordinating with Process & raw material team
  3. 100% production is achieved as per BP
  4. Coke rate & PCI injection as per budget
  5. Skull as per budget
  6. Ensuring desired Raw material is been feed into furnace which includes screening efficiency of sizer & VC screens; burden preparation & fine tuning
  7. Ensuring Hot Blast Temp available is > 1000°C
  8. Ensuring APH & GPH performance
  9. Ensuring GCS performance through regular monitoring
  10. Optimisation of PCI towards cost reduction initiative
  11. Driving improvement & other AO related module requirements
  12. Involve in RCA investigation
  13. Preparing & implementing the action plan for reducing the process variations based on Cp, Cpk
  14. Identifying VA / NVA activities for process & elimination of NVA’s for process efficiency improvement
  15. Regular interactions, VFL compliances, trainings
  16. All checklists to be checked on daily basis
  17. Housekeeping of mentioned area to be maintained
  18. Ensuring all SOP's are reviewed & CAPA's have been incorporated
  19. Planning & Process monitoring
  20. Improvement in productivity of furnaces.
  21. Ensuring safe working conditions
  22. Responsible for reducing cost of iron making
  23. Daily work management, safety & environment initiative.
  24. Trouble shooting for process variation.
  25. Achieving production targets & grade wise production
  26. Reduction in operational down time.
  27. Burden correction
  28. Monitoring & planning of reduction in skull generation.
  29. Monitoring & planning of reduction in rough top pig.
  30. Inventory level monitoring & control
  31. Co-ordination with service department.
  32. Monitoring and review of third party services.
  33. Implementing QEHS, EnMS at Production department of Pig Iron Plant
  34. Reviewing & Identifying new activities for HIRA & Aspect / Impact
  35. Updating QEHS, EnMS Dept Manual.
  36. Compliance of Statutory requirement under various acts
  37. Monitoring Key Environmental parameters
  38. Reviewing & monitoring of objectives and targets for significant aspects.

Review & Preparation of standard work procedure

* 1. Ensuring good housekeeping and safe working environment
  2. Attend Management review meetings and ensure that action plans arising out of the management review meetings are carried out
  3. Ensure adherence to QEHS, EnMS system procedures & Departmental work Instructions.
  4. Identifying significant energy consuming sources, monitoring significant energy source, planning energy as per the base line, EnPI, taking objects, targets and performing those objects as per the plan.
  5. Active involvement in conducting mock drills and familiarizing the subordinates about QEHS, EnMS work instructions
  6. Report non-conformance observed to departmental head.
  7. Corrective /Preventative action implementation for non-conformance related to QEHS, EnMS

1. **Roles, Responsibilities, Accountability and Authority of INCHARGE HOT METAL HANDLING**

**Educational qualification**: Degree in Metallurgy Engg. & Diploma in Engg with 10years experience in Blast Furnace Operation

**Skilled required**: Handling PCM & ladle management abnormalities, Strong analytical skill, Sound knowledge of blast furnace operation, excellent interpersonal skills, and Trouble shooting skills.

**Authority, responsibility**: Monitoring of process control & improvement in productivity by increasing PCM availability, Inventory control. Enforcing energy efficient procedures and energy efficient project and energy reduction for production of pig iron. Enforcing resources required for those energy saving projects. Operation of Slag dryer and other furnaces auxiliaries like pumps, Thickener, cooling tower, Grab cranes, Hot metal handling etc.

**Expenses controlled**: Controlling & monitoring of third party billing. Inventory control.

**Decision making**: Timely action for preventing hot metal backlog. Productivity of furnace by maintaining PCM availability.

**Managerial control:** Managerial skill is very much necessary for this position.

**Span of teams**: Entire PCM, Bag house& Desulphurization, Slag dryer Pigs & skull handling staff, workmen. & co-ordination with service department.

**External interaction**: Pig mould suppliers, Hydrated & burnt lime suppliers,

QEHS, EnMS auditors.

**Key /Major activities & Roles with priority**

1. Ensuring Continuous & smooth running of Furnace
2. Zero quality complaints for pig iron (rough tops, appearance)
3. 100% production is achieved as per BP
4. Zero quality complaints in slag dispatches
5. Skull as per budget
6. Ensuring all cast house assets & equipment healthiness such as Runner, drill m/c, Mud gun etc.
7. Ensuring performance of PCM's; compliance to pig quality through regular monitoring
8. Ensuring de-dusting bag house performance
9. Ensuring performance of slag dryer; compliance to quality through regular monitoring
10. Healthiness of 2 ponds (GCS, PCM & SG); maintain regularity in cleaning schedule
11. Cooling tower healthiness
12. Driving improvement & other AO related module requirements
13. Regular interactions, VFL compliances, trainings
14. All checklists to be checked on daily basis
15. Housekeeping of mentioned area to be maintained
16. Ensuring all SOP's are reviewed & CAPA's have been incorporated
17. Planning & Process monitoring
18. Improvement in PCM, Slag dryer, Furnace auxiliaries, Raw material handling system availability.
19. Ensuring safe working conditions
20. Ensure the efficient utilization of slag dryer plant to dry the entire slag generated in both the blast furnaces for value addition.
21. Ensuring timely removal of sludge from the GCS and slag setting tanks to improve the efficiency of Gas cleaning system. Total management of cooling tower and water cooling system of the furnaces.
22. Responsible for reducing cost of iron making by conserving recourses.
23. Daily work management, safety & environment initiative.
24. Trouble shooting for process variation in pig handling.
25. Achieving pig moulds consumption targets & reducing skull generation
26. Monitoring & planning of reduction in skull generation.
27. Monitoring & planning of reduction in rough top pig.
28. Ensure the casting all the hot metal produced from both the blast furnaces into good quality pigs in the PCM.
29. Oversee the skull generation in hot metal handling and initiate necessary corrective steps to be the best in the industry.
30. Ensure the availability of all PCM and accessories to the process to achieve maximum production.
31. Ensure the availability of hot metal ladles after deskulling and proper cleaning.
32. Inventory level monitoring & control
33. Co-ordination with service department.
34. Monitoring and review of third party services.
35. Implementing QEHS, EnMS at Production department of Pig Iron Plant
36. Reviewing & Identifying new activities for HIRA & Aspect / Impact
37. Updating QEHS, EnMs Dept. Manual.
38. Identifying significant energy consuming sources, monitoring significant energy source, planning energy as per the base line, EnPI, taking objects, targets and performing those objects as per the plan.
39. Compliance of Statutory requirement under various acts
40. Monitoring Key Environmental parameters
41. Reviewing & monitoring of objectives and targets for significant aspects.
42. Review & Preparation of standard work procedure
43. Ensuring good housekeeping and safe working environment
44. Attend Management review meetings and ensure that action plans arising out of the management review meetings are carried out
45. Ensure adherence to QEHS, EnMS system procedures & Departmental work Instructions.
46. Active involvement in conducting mock drills and familiarizing the subordinates about QEHS, EnMS work instructions
47. Report non-conformance observed to departmental head.
48. Implementation of TPM
49. Implementation of AO
50. Involve in RCA investigation
51. Work towards achieving FIP targets

**5. Roles, Responsibilities, Accountability and Authority of In charge Inventory**

Educational qualification: Diploma in production engineering with 5 years’ experience in Blast Furnace operation.

Skilled required: Strong analytical skill, High degree of accuracy in reporting the facts, Very good interpersonal communication skills.

Authority, responsibility: He is responsible for the monitoring of inventory level of Production consumable, general housekeeping of the production area & third party billing.

Expenses controlled: Nil.

Decision making, error: He must be able to take decision without any error in

Margins & critically. Maintaining optimum inventory level as those are directly linked to the performance of the process and while handling third party billing.

Managerial control: Supervisory skill is very much necessary for this position.

Span of teams : Persons reporting nil.

External interaction : Third party services

**Key /Major activities & Roles with priority**

1. Making of Purchase Requisitions, Material inspection, Material Requisition in SAP.
2. Tracking of consumables and all other BF3 requirement to ensure availability of materials at site and follow up with purchase for the same.
3. Annual budget preparation for consumables and third party services.
4. Documentation of water treatment report, water consumption report, checklist, material consumption.
5. Daily production O&M manpower certification
6. Providing SBT provision at every month end.
7. Implementation of AO.
8. Periodic evaluation of contractor based on contractor score card.
9. Organizing review meetings with contractors & maintaining of MOM’s.
10. Third party vendor billing, Service bills.
11. As a general shift Engineer he should inspect the working area for safety hazards and report the same to the shift superintendent or get it rectified with the help of proper agency before starting the normal activities.
12. Discuss/ explain the safety hazards of the area to the subordinates before starting the jobs.
13. Checking & Updating General shift check-list and reporting to Sr. Manager ,Manager Production & Shift Superintendents.

Roles, responsibilities and authorities of the Shift superintendent, Junior Managers and all staff of production department for the implementation, maintenance & continually improving the QEHS, EnMS system are described below. Shift in charge and the area head (staff) are accountable for all the activities carried out in their area either by company or contractor employees.

1. **Roles, Responsibilities, Accountability and Authority of SHIFT SUPERINTENDENT**

**Educational qualification**: Degree in Metallurgy Engg. & Diploma in Engg with 07 years

Experience in Blast Furnace Operation

**Skilled required**: Handling blast furnace abnormalities, Strong analytical skill.

**Authority, responsibility**: Monitoring of process control, enforcing energy efficient

Procedures and energy efficient project and energy reduction for production of pig iron.

**Expenses controlled**: Nil

**Decision making, error**: Timely action for controlling down time & handling Margins &critically abnormalities

**Managerial control**: Managerial skill is very much necessary for this position.

Span of teams: Entire Production dept. shift staff, workmen. & co-ordination with service department.

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**External interaction**: Service department.

**Key /Major activities & Roles with priority**

1. Process monitoring
2. Achieving shift production targets & grade wise production
3. Reduction in operational down time.
4. Identifying new activities for HIRA & Aspect / Impact
5. Daily sift work management, safety & environment initiative.
6. Shift man power leave plan.
7. Trouble shooting for process variation.
8. Implementation of TPM
9. Implementation of AO
10. Reporting the abnormalities/ Breakdown notifications in SAP
11. Involve in RCA investigation
12. Work towards achieving FIP targets
13. Ensuring all the workmen are following SOPs.
14. Ensuring active participation in safety pledge and pep talk at the start of the shift.
15. Reporting of unsafe condition /acts/near miss.
16. Ensuring shift safe working conditions.
17. Co-ordination with Jr. Managers & other Engineers for smooth functioning of blast furnaces.
18. Burden correction
19. Checking & review of all shift report checklist.
20. Maintaining start-up & shut –down checklist.
21. Handling Furnace irregularities.
22. Co-ordination with service department.
23. Optimum use of third party services.
24. Ensuring good housekeeping & safe working environment.
25. Reduction in skull generation.
26. Reduction of Rough Top pig.
27. Participate in initial and subsequent QEHS, EnMS reviews.
28. Implementing QEHS, EnMS management system.
29. Ensure adherence to QEHS, EnMS system procedures & Departmental work Instructions.
30. Identifying significant energy consuming sources, monitoring significant energy source, planning energy as per the base line, EnPI, taking objects, targets and performing those objects as per the plan.
31. Active involvement in conducting mock drills and familiarizing the subordinates.
32. Report nonconformance observed to departmental head.
33. **Roles, Responsibilities, Accountability and Authority of - FURNACE IN CHARGE BF1 & 2**

**Educational qualification**: Engineering Degree in Metallurgy with min 3 years’ experience

/Diploma in Eng. B.Sc. with 8 years’ experience in Blast Furnace operation.

Skilled required: Strong analytical skill, High degree of accuracy in reporting the facts, Very good interpersonal skills.

**Authority & Responsibility** : This position is responsible for the smooth functioning of

Blast furnace in the shift. , Enforcing energy efficient procedures and energy efficient project and energy reduction for production of pig iron.

**Expenses controlled**: Nil. He is responsible for the optimize use of production

Consumable in furnace.

**Decision making, Error** **margins & critically**: Associate Mang. Cast house must be able to take decision. Without any error regarding tuyere conditions, burden corrections, drying the furnace etc.

**Managerial control**: Managerial control is very much necessary for this position

**Span of teams**: He must be capable of leading a team of workmen and other technical staff. Total 9 workmen reporting directly

**External interaction**: Supplier of production consumable

**Key /Major activities & Roles with priority**

1. Report to shift superintendent.
2. He is overall In charge of the individual furnace.
3. He is responsible for the casting schedule and dry cast.
4. Cast house engineer being overall In charge of the individual furnace, he has to ensure the distribution of manpower and incase of any shortage reports immediately to the shift superintendent for necessary action.
5. Ensure proper maintenance of all the runners including emergency launder, spouts and tap hole as per laid down procedure.
6. Ensure that mud gun and drill machine are in working condition before opening the cast
7. Ensure availability of lancing pipes, poking rods, trough mass etc.
8. After the cast is closed , the engineer has to move out to the different areas (ensure that all raw material is being consumed from proper stack without mixing, reporting od spillages if any, ensure effectiveness of dust suppression system) to see the proper functioning of different equipment. He should ensure that system is working and he gets the feedback from all the sources.
9. He has to assist Control room engineer.
10. Maintenance of hot metal ladle like cleaning the top skull, tilting after each and every cast after pouring and ensure a cleaned ladle placed under a spout in proper position.
11. He has to assist in desulphurization process during DS campaign.
12. Ensure all furnace cooling water spray system working ( tuyeres, tuyere coolers, furnace shell and return water pumps ) in good condition
13. He is responsible for taking proper shutdown of the furnace.
14. Ensure drying of dust catcher in every first shift and after startup.
15. As a line supervisor he should inspect the working area for safety hazards and report the same to the shift superintendent or get it rectified with the help of proper agency before starting the normal activities.
16. Discuss/ explain the safety hazards of the area to the subordinates before starting the jobs.
17. Implementation of TPM
18. Implementation of AO
19. Reporting the abnormalities/ Breakdown notifications in SAP
20. Involve in RCA investigation
21. Work towards achieving FIP targets
22. Ensuring all the workmen are following SOPs.
23. Ensuring active participation in safety pledge and pep talk at the start of the shift.
24. Reporting of unsafe condition /acts/near miss.
25. Updating of cast house checklist. Participate in initial and subsequent QEHS, EnMS reviews
26. Implementing QEHS, EnMS management system\
27. Identifying significant energy consuming sources, monitoring significant energy source, planning energy as per the base line, EnPI, taking objects, targets and performing those objects as per the plan.Ensure adherence to QEHS, EnMS system procedures & Departmental work Instructions.
28. **Roles, Responsibilities, Accountability and Authority of Utility**

**Educational qualification**: Diploma in Metallurgy /production engineering with 2 years’ experience in Blast Furnace operation

**Skilled required**: Strong analytical skill, High degree of accuracy in reporting the facts, Very good interpersonal communication skills.

**Authority, responsibility**: He is responsible for the safe operation of GCS, blower House & HBS in each furnace. Enforcing energy efficient procedures and energy efficient project and energy reduction for production of pig iron

**Expenses controlled**: Nil.

**Decision making, error margins &critically**: He must be able to take decision without any error in

Safe HBS operation, blower starting and GCS as those are directly linked to the performance of the process.

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**Managerial control:** Managerial control is not essential for this position.

**Span of teams**: Persons reporting nil.

**External interaction** “Less.

**Key /Major activities & Roles with priority**

1. This responsibility will be preferably given to Engineers or officers and he will be directly report to cast house engineer.
2. Adjusting the hot blast temperature required in consultation with control room engineer/cast house engineer/ shift superintend.
3. Maintaining air& gas ratio and achieve the maximum blast temperature.
4. Periodical draining of water from the gas lines.
5. Inspection of all vales in the HBS systems and burners.
6. Checking all the blowers in operation and incase of any problem inform the concerned dept. as well as Sr Engineer / shift superintendent.
7. Changing over of the blowers should be as per the laid down procedure. After changeover, feedback should to given to batching engineer/ Sr. engineer/ shift superintendent.
8. Ensure the discharge of effluent at regular intervals and addition of flocculent in the GCS discharge water.
9. Checking of GCS and water sealing system. (Including drip pots to ensure overflow).
10. Inspection of all the pumps involved for the GCS.
11. Ensure that the gas holder sump is properly dried.
12. Identifying significant energy consuming sources, monitoring significant energy source, planning energy as per the base line, EnPI, taking objects, targets and performing those objects as per the plan.
13. As a line supervisor he should inspect the working area for safety hazards and report the same to the shift superintendent or get it rectified with the help of proper agency before starting the normal activities.
14. Discuss/ explain the safety hazards of the area to the subordinates before starting the jobs.
15. Monitoring and management of complete water system (Jetty, overhead tank, S pond, tailing pond, Napoli, Bhandara.
16. Implementation of AO
17. Reporting the abnormalities/ Breakdown notifications in SAP
18. Involve in RCA investigation.
19. Ensure that the cooling tower pumps are periodically changeover to maintain healthiness of the system.
20. He has to take up desulphurization process during DS campaign.
21. He has to oversee slag dryer operation and shifting/stacking of wet slag.
22. **Roles, Responsibilities, Accountability and Authority of – OFFICER HMH**

**Educational qualification**: Diploma in Metallurgy /production engineering or B. Sc with 5years’ experience in Blast Furnace operation.

**Skilled required**: Strong analytical skill, High degree of accuracy in reporting the facts, Very good interpersonal skills.

**Authority, responsibility**: This position is responsible for smooth functioning of the hot metal handling in pig casting operation and he has to assist shift superintendent, enforcing energy efficient

Procedures and energy efficient project and energy reduction for production of pig iron.

**Expenses controlled**: Nil. He is responsible for the physical quality of pig iron which is affecting the selling price of the pig iron.

**Decision making, error** margins **& critically**: He must be able to take decision to prevent rough top pigs, ladle maintenance. PCM cracked moulds replacement etc. without any error and it is very critical.

**Managerial control**: Managerial control is very much necessary for this position

**Span of teams**: He must be capable of leading a team of engineers and other technical staff. 1 engineer indirectly & 13 workmen reporting directly.

**External interaction**: Interaction with Pig mould suppliers

**Key /Major activities & Roles with priority**

1. This job should be given preferably to a Senior Engineer.
2. Pig casting machine. Before pouring in the pig casting machine the concerned engineer should check all the moulds, rollers and in case of any defective moulds it should be changed immediately. Ensure spillage of hot metal during pouring is bare minimum of that the jam occurs by splashing is cleaned so that the pouring does not stop
3. Ensure hot metal crane operators are following laid down procedures in controlling pig size, rough top, spillage and ladle movement.
4. He has to assist in desulphurization process during DS campaign.
5. Implementation of TPM
6. Implementation of AO
7. Reporting the abnormalities/ Breakdown notifications in SAP
8. Involve in RCA investigation
9. Work towards achieving FIP targets.
10. Ensuring all the workmen are following SOPs.
11. Ensuring active participation in safety pledge and pep talk at the start of the shift.
12. Reporting of unsafe condition /acts/near miss.
13. Identifying significant energy consuming sources, monitoring significant energy source, planning energy as per the base line, EnPI, taking objects, targets and performing those objects as per the plan.
14. Ensure hot metal pouring is carried out without any delay after the cast is closed.
15. He should ensure that all the moulds are free of stickers and the rollers are free to move.
16. In case of any crack mould or any problem, he should immediately inform to the concerned dept. and get it rectified. In addition, he should consult with shift superintendent for the breakdown time for adjusting the blast volume or any necessary action.
17. Ensure PCM runner is cleaned and runner spout is made before pouring of ladle.
18. Ensure proper lime solution and the availability of lime bags so that there should not be any problem during pouring.
19. Ensure proper coating of lime solution on the moulds during and after hot metal pouring is over.
20. Checking and ensuring all standby equipment are ready for use.
21. Ensure required quantity of water is sprayed on moulds during pouring.
22. Ensure regular dispatch of pig after the pouring is over to avoid disturbing pouring schedule.
23. Ensure cleaned empty ladles are placed below the metal spout before starting of hot metal pouring.
24. During shutdown, he has to assist the cast house engineer/shift superintendent.
25. a) As a line supervisor he should inspect the working area for safety hazards and report the same to the shift superintendent or get it rectified with the help of proper agency before starting the normal activities.

b) Discuss/ Explain he safety hazards of the area to the subordinates before starting the jobs.

2. Updating of PCM checklist.

1. **Roles, Responsibilities, Accountability and Authority of - CONTROL ROOM ENGINEER**

**Educational qualification**: Engineering Degree in Metallurgy with 2 years’ experience

In Blast Furnace operation.

**Skilled required**: Strong analytical skill, High degree of accuracy in reporting the facts, Very good interpersonal skills

**Authority, responsibility**: This position is responsible for the process control in each. Blast furnace & reporting process variation to Shift Superintendent. Enforcing energy efficient procedures and energy efficient project and energy reduction for production of pig iron.

**Expenses controlled**: Nil

**Decision making ,error margins & critically**: C/R Engineer must be able to take decision without any error regarding computer feeding , burden setting ,keeping top gas temperature in limits, ERP data entry etc. and it is very critical

**Managerial control:**  Managerial control is not important for this position.

**Span of teams**: Persons reporting nil.

**External interaction**: Less

**Key /Major activities & Roles with priority**

1. This responsibility preferably given to an engineer and he report to the cast house engineer.
2. Ensure proper batching and periodic checking of batch report.
3. Ensure proper dumping is taking place.
4. Ensure top gas temperatures control by opening top water sprays if required.
5. Control of process parameters as per the set guidelines under the guidance of shift superintendent / cast house engineer.
6. Report any furnace abnormalities immediately to shift superintendent / cast house engineer.
7. Updating of log sheet.
8. Ensure timely blower changeover.
9. During shutdown, he has to assist the shift superintendent/cast house engineer.
10. Ensure proper functioning of all the instruments and all the charging system equipment.
11. He has to coordinate with the concerned departments and shift superintendent in case of any abnormality detected in the control room.
12. As a line supervisor he should inspect the working area for safety hazards and report the same to the shift superintendent or get it rectified with the help of proper agency before starting the normal activities.
13. Identifying significant energy consuming sources, monitoring significant energy source, planning energy as per the base line, EnPI, taking objects, targets and performing those objects as per the plan.
14. Updating of control room checklist.
15. Implementation of TPM
16. Implementation of AO
17. Reporting the abnormalities/ Breakdown notifications in SAP
18. Involve in RCA investigation
19. Work towards achieving FIP targets
20. Ensuring all the workmen are following SOPs.
21. Ensuring active participation in safety pledge and pep talk at the start of the shift.
22. Reporting of unsafe condition /acts/near miss.

**Roles, responsibilities and authorities of the workmen of the production department for the implementation, maintenance & continually improving the QEHS system are described below. Area wise workers are accountable for all the activities carried out in their area**

**WORKMEN**

- Adherence to QEHS work instruction for Quality with safety, taking care of environment.

- Reports non-conformance observed to the concerned engineer / officers

1. **Foreman**

**Reporting**: He will directly report to Furnace in charge and in directly to Control room engineer.

**Roles and Responsibility**:

He will be responsible for:

1. Physically watching tuyere movement and abnormalities, observing all cast and their temperatures and liaisoning with the control room and furnace in charge in getting updates.
2. Ladle management in consultation with hot metal in charge.
3. Availability of proper tools and their maintenance.
4. Use of all PPE by all workers under his supervision.
5. Delegation of man power in cast house.
6. Availability of sufficient water for slag granulation.
7. Emptying of Slag pit and keeping it ready before opening of every cast.
8. EL readiness, runner condition on regular basis. And runner required to be made if found deep.
9. For maintaining runner preparation schedule.
10. Sand area barricading on top and cast house debris barricading below.
11. Barricading the ladle placement area.
12. All the safety of the runner preparations and all safety procedures are followed.
13. Maintain casting schedule.
14. Ensuring Mud gun nozzle cleaning and filing.
15. Use of De-dusting system.
16. Oxygen cylinders availability in sufficient numbers for opening cast.
17. All the consumables viz
    1. Hydrous clay.
    2. Mud gun clay.
    3. Runner mass.
    4. Thermocouple tips.
    5. Rice husk.
    6. Fire wood.
    7. Poking rods.
    8. Lancing pipes.
    9. Sand.
    10. Coke fines.

Are available in cast house.

**He is responsible for:**

* 1. Proper shell cooling. He has to check enough water is available at all shell on the furnace.
  2. Checking all the pressure gauges.
  3. Checking the out let temperatures of the tuyeres, tuyere coolers and cooling plate outlet temperatures at the start of the shift and to be informed to control room. He has to check these outlets throughout the shift in regular intervals.
  4. Any deviations found in shell cooling and inform control room engineer for getting it rectified immediately.
  5. He has to assist Furnace in charge for dumping dust catcher.
  6. He is responsible for safety of the man and machine.
  7. He is responsible for Cast house 5S.
  8. He has to co-ordinate all the work procedures of shutdown and start-up of the furnaces. And to be ensure all the shutdown jobs of cast house.
  9. He has to fill all the check lists. He is responsible for the correctness of the report.
  10. He has to give pep talks to all his workers who are working under him.
  11. He has to give on job training for new workers.

1. **TAPHOLE OPERATOR**

Use of safety PPE.

1. He is 2nd in the hierarchy.
2. Follow all work instructions.
3. Maintain good housekeeping
4. Maintaining casting schedule.
5. Pushing of sand of the main runner while drilling operation is completed and lancing the taphole.
6. Assisting in poking activities i.e. opening of cast.
7. Avoid contamination of hot metal.
8. Hot metal and slag sampling
9. Assisting cleaning of the taphole, main runner during casting and after closing of the cast.
10. Showing of latch engagement while closing the cast and dam breaking after proper slag diversion.
11. Maintaining runner-making schedule.
12. Maintaining casting schedule
13. Assisting during furnace shutdown and startup operation
14. Follow instruction given by the Sr. taphole operator.
15. Permission to be taken before leaving th workplace of Sr. Taphole operator or Furnace Incharge.
16. And any other job assigned by furnace in charge.
17. Reducing waste of production consumables.
18. Safe keeping of all tools and tackles.
19. **Tap Hole operator PCM runner**
20. He is 2nd or 3rd in the hierarchy
21. Follow all work instructions
22. Use of safety PPE
23. Maintain good housekeeping
24. Maintain proper dam height, pouring spout runner and discharge spout.
25. Avoid slag contamination in pigs, ensure clean pigs.
26. Proper sampling i.e when ladle is half empty.
27. Maintaining ladle spout.
28. Maintaining spare PCM runner in clean condition and cleaning of the metal accumulator from below the PCM platform.
29. Assisting the pourer in anchoring of ladle.
30. Assisting the pourer in engagement of 40T and 10T crane hook on ladle.
31. Assisting the pourer in placing and removing of ladle from below the metal runner spout.
32. Any other job assigned by the PCM engineer.
33. Proper hand over of the charge to the reliever
34. Safe keeping of all tools and tackles.
35. Reducing wastage of production consumables.
36. **DAM MAKING**
37. He is 3rd in the hierarchy
38. Follow all work instructions.
39. Use of all safety PPE.
40. Maintain good housekeeping.
41. Cleaning and making of dam, closing of Bypass plate hole and metal runner making and maintaining runner and spout condition.
42. Maintaining skimmer plate hole as per dam height and if required.
43. Barricading metal runner area and use of safety belts.
44. Maintaining casting schedule.
45. Assisting in furnace shutdown and start up activities.
46. Assisting during opening of cast i.e. poking activities and leaving of O2
47. Follow instruction given by the Sr. Tap hole operator.
48. Permission to be taken before leaving the workplace of Sr. Tap hole operator or furnace in charge.
49. And any other job assigned by the furnace in charge.
50. Proper handover of the charge to the reliever.
51. Safe keeping of all tools and tackles.
52. Reducing wastage of production consumables.
53. **RUNNER PREPARATION INCLUDING SLAG RUNNER**
54. He is 4th in the hierarchy
55. Follow all work instruction.
56. Use of all safety PPE
57. Maintain good house keeping
58. Cleaning and making of runner for cast opening i.e. maintaining proper depth of the runner.
59. Maintaining casting schedule.
60. Assisting during opening of the cast i.e poking activities and leaving of O2
61. Maintaining runner making schedule.
62. Assisting during furnace shutdown and start up activities.
63. Follow instruction given by Sr. Taphole operator.
64. Permission to be taken before leaving the workplace of Sr. Taphole operator or Furnace incharge.
65. Safe keeping of all tools and tackles.
66. Reducing wastage of all production consumables.

**MUDGUN**

1. He is 4th in the hierarchy.
2. Follow all work instructions.
3. Use of all PPE.
4. Housekeeping
5. Cleaning of mudgun nozzles and filling the barrel and ensure sufficient stock of clay and proper handover to the reliever.
6. Arranging of O2 cylinder and keeping O2 bank full and properly securing them with chain and shifting of empty cylinder.
7. Timely carrying of slag/metal and gas samples to lab.
8. Timely flushing of saturator drip pot and return water sump draining.
9. Assisting during furnace shutdown and startup operation.
10. Follow instructions given by Sr. Taphole operator.
11. And any other job assigned by Furnace in charge.
12. Permission to be taken before leaving work place of Sr. Taphole operator or furnace in charge.
13. Reducing wastage of mud gun clay and all other production consumables.
14. Safe keeping of all tools and tackles.

**GADA**

1. He is 4th in the hierarchy.
2. Follow all work instructions.
3. Use of all safety PPE.
4. Maintain good housekeeping.
5. Timely cleaning of main runner and supplying sand for runner preparation and cast house area clearing.
6. Maintaining casting schedule.
7. Arranging sufficient nos. of lancing pipes, poking rod, mudgun clay, drill bits, runner mass, fire wood, rice husk, hydrous clay, temp. Tip sand, coke fines. Shifting of used drill bits to machine workshop.
8. Assisting during casting activities.
9. Assisting during shutdown and startup activities.
10. Follow instruction given by Sr. Taphole operator.
11. And any other job assigned by furnace incharge.
12. Permission to be taken before leaving workplace of Sr. taphole operator or furnace in charge.
13. Reducing of wastage of sand and production consumables.
14. Safe keeping of all tools and tackles

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| **Prepared By:**  Control Room In charge | **Reviewed & Issued By:**  Management Representative | **Approved By:**  Head – Operations PID1 |
| **Signature:** | **Signature:** | **Signature:** |
| **Review Date: 08.08.2022** | **Review Date: 08.08.2022** | **Review Date: 08.08.2022** |