

**ENVIRONMENT STATEMENT FOR THE FINANCIAL
YEAR ENDING 31ST MARCH'2017.**

PART – A

| | | |
|-----------|---|--|
| 1. | Name and address of the owner of the industry operation or process | SRI PAWAN KUMAR SINGH Chief Executive Officer SAIL / Bokaro Steel Plant, Bokaro Steel City, Jharkhand |
| 2. | Industry Category | Primary |
| 3. | Production capacity | 4.0 Million Tonne crude steel per annum |
| 4. | Year of establishment | 1972 |
| 5. | Date of last environment statement submitted | 30.06.2016 |

PART – B

WATER AND RAW MATERIAL CONSUMPTION

(i). WATER CONSUMPTION (Basic data)

| Sl. No. | Purpose | 2015-16 | 2016-17 |
|---------|------------------|----------------------------|----------------------------|
| 1 | Process/ cooling | 39082 m ³ /day | 35885 m ³ /day |
| 2 | Domestic | 193545 m ³ /day | 169786 m ³ /day |

| Sl. No. | Name of products | Process water consumption per unit of product output | |
|---------|------------------|--|--|
| | | <i>During the previous financial year 2015-16</i> | <i>During the current financial year 2016-17</i> |
| 1 | Crude Steel | 4.21 m ³ /Tonne crude steel | 4.153 m ³ /Tonne crude steel |

(ii). RAW MATERIAL CONSUMPTION

| Sl. No. | Name of Raw Material | Name of products | CONSUMPTION OF RAW MATERIAL PER UNIT OUTPUT | |
|---------|------------------------|------------------|---|--|
| | | | <i>During the previous financial year</i> | <i>During the current financial year</i> |
| | | Crude Steel | 2015-16 | 2016-17 |
| 1 | Coal | | 0.90195 | 0.86313 |
| 2 | Ore fines | | 1.08285 | 1.15259 |
| 3 | Ore lump | | 0.57999 | 0.52710 |
| 4 | Lime Stone | | 0.22462 | 0.17053 |
| 5 | Dolomite | | 0.23047 | 0.25920 |
| 6 | Mn-ore | | 0.00000 | 0.00000 |
| 7 | Other alloying element | | 0.01095 | 0.01071 |
| | Total | | 3.03083 | 2.98326 |

PART – C

POLLUTION DISCHARGE TO ENVIRONMENT/UNIT OF OUTPUT

(Parameters as specified in the consent order)

| S. N. | PARTICULARS | QUANTITY POLLUTANTS DISCHARGED PER UNIT OF OUT PUT(KG/T OF CRUDE STEEL | QTY. OF POLLUTAN -TS DISCHAR- GED (kg/Day) | CONC. OF POLLUTAN- TS DISCHAR- GED MASS/ VOL. (Unit : mg/Lit.) | % FROM PRESCRIBED STANDARDS REASON |
|-------|--------------------|--|--|--|------------------------------------|
| 1. | WATER | <i>TOTAL POLLUTANT LOAD FROM PLANT FROM ALL OUTFALLS</i> | | | |
| | Suspended Solids | 0.050209 | 460.77 | 25.6 | All below norm |
| | Oil & Grease | 0.0016329 | 14.98 | 0.8326 | -do- |
| | Phenolic Comp. | 0.000053 | 0.489 | 0.0272 | -do- |
| | Cyanide | 0.000076 | 0.648 | 0.0365 | -do- |
| | BOD | 0.017239 | 158.22 | 8.79 | -do- |
| 2. | AIR | | | | |
| | Particulate Matter | 0.87 | - | - | -do- |



सेल SAIL
PART – D

DETAILS OF HAZARDOUS WASTE GENERATION & DISPOSAL DURING 2016-17

| S.N. | HAZARDOUS WASTE | ANNUAL QTY (T) | SOURCE OF GENERATION | TYPE OF DISPOSAL | CATEGORY OF WASTE |
|------|---------------------------------------|----------------|--------------------------------|--|---|
| 1. | Acidic Tar Sludge | 1084 | By Product plant of Coke Ovens | Disposed in hazardous waste pit | 13.4 of Schedule – I |
| 2. | Spent Vanadium Pentoxide | 0.700 | do | do | 17.2 of Schedule - I |
| 3. | Sulphur Sludge | 107 | do | do | 17.1 of Schedule – I |
| 4. | Decanter Tar Sludge | 81 | do | Charged with coal blend in Coke oven batteries | 13.3 of Schedule – I |
| 5. | Decanter Tar Sludge | 765 | do | Disposed in hazardous waste pit | 13.3 of Schedule – I |
| 6. | Tar Muck with Sand etc. | 195 | do | Disposed in hazardous waste pit | 13.4 of Schedule – I |
| 7. | Oil & Grease Muck | 102 | Mills area | do | 4.1 of Schedule – I 4.4 of Schedule – I |
| 8. | Asbestos Rope | 10 | Coke oven area | do | 15.2 of Schedule – I |
| 9. | Transformer oil | 30 KL | DNW | Sold to authorised buyer | 5.1 of Schedule – I |
| 10. | Oil sludge from oil regeneration unit | 0.4060 | Oil regeneration unit | Handed over to I.O.C. For regeneration/disposal | 4.1 of Schedule – I |
| 11. | Zinc dross | 191.58 | HDGC/CRM | Sold to authorised parties | 6.3 of Schedule – I |
| 12. | Zinc ash | 38.35 | do | do | 6.2 of Schedule – I, C-14 of Schedule – II |
| 13. | Used batteries | 1102 | Mills/Iron zone/OG/Traffic | do | C-12.3 of Schedule – I C-14 of Schedule – II |
| 14. | ETP sludge | 1200 | BOD plant of COBPP | Charged in Coke Oven batteries by mixing in coal | 34.3 of Schedule – I |
| 15. | Flue Dust | 59387 | Blast furnace | Internal Recycling | 34.1 of Schedule – I |

HAZARDOUS WASTE AUTHORIZATION REF. No.: HW/D-2219 DATED. 11.11.2016 and is valid up to 31.03.2020

PART – E
SOLID WASTE

| S. N. | | DURING PREVIOUS FINANCIAL YEAR (2015-16) (TONNE/Yr.) | DURING CURRANT FINANCIAL YEAR (2016-17) (TONNE/Yr.) |
|----------|--|---|---|
| 1 | FROM PROCESS | | |
| | a | Blast Furnace slag | 1401546 |
| | b | SMS Slag | 373128 |
| | c | Lime Dust | 3068 |
| | d | Mill Scale | 46385 |
| | e | Coke Breeze | 315552 |
| 2 | FROM POLLUTION CONTROL FACILITY | | |
| | a | Flue dust | 56945 |
| | b | ESP dust | 9971 |

| 1. RECYCLED/REUTILISED WITHIN THE UNIT | | | |
|---|---------------------------|----------------|----------------|
| | SOLID WASTE | QTY. (Tonne) | |
| | | <i>2015-16</i> | <i>2016-17</i> |
| a | Blast furnace slag | 650370 | 517296 |
| b | SMS slag | 203463 | 309539 |
| c | Lime dust | 0.00 | 0.00 |
| d | Mill Scale | 46385 | 62410 |
| e | Coke breeze | 315552 | 322045 |
| f | Flue dust | 56945 | 59387 |
| g | ESP Dust | 9971 | 8100 |

| 2. SOLD | | | |
|----------------|---------------------------|---------------------|----------------|
| | SOLID WASTE | QTY. (Tonne) | |
| | | <i>2015-16</i> | <i>2016-17</i> |
| a | Blast furnace slag | 748836 | 769379 |
| b | SMS slag | 112000 | 7921 |
| c | Lime dust | 3068 | 5790 |
| d | Mill Scale | 0.00 | 0.00 |
| e | Ferric Oxide | 1452 | 5600 |

| 3. DISPOSAL | | | |
|--------------------|---------------------------|--------------|--------------|
| a | Blast furnace slag | 2340 | 404 |
| b | SMS slag | 57665 | 29449 |
| c | Flue dust | NIL | NIL |

PART – F

| S. N. | SOLID WASTE | PERCENTAGE COMPOSITION | | QTY.(YEAR) |
|--------------|--------------------|------------------------------------|--------------------|---------------------|
| 1 | BF SLAG | SiO₂ | 33.75-33.90 | PLEASE REFER PART-E |
| | | Al₂O₃ | 17.24-17.50 | -do- |
| | | CaO | 35.61-35.82 | -do- |
| | | MgO | 9.89-10.16 | -do- |
| | | FeO | 0.26-0.46 | -do- |
| | | K₂O | 0.65-0.91 | -do- |
| | | TiO₂ | 0.65-0.79 | -do- |
| | | MnO | 0.14-0.26 | -do- |
| | | S | 0.47-0.50 | -do- |
| | | Basicity | 1.03-1.06 | -do- |
| 2 | SMS SLAG | CaO | 44.23-52.35 | -do- |
| | | FeO | 13.54-21.65 | -do- |
| | | SiO₂ | 10.13-18.98 | -do- |
| | | MgO | 12.17-15.15 | -do- |
| | | MnO | 0.58-0.88 | -do- |
| | | P₂O₅ | 1.74-2.68 | -do- |
| | | Al₂O₃ | 0.70-1.29 | -do- |
| | | Basicity | 2.67-3.33 | -do- |
| 3 | LIME DUST | CaO | 87.53 | -do- |
| | | SiO₂ | 2.6 | -do- |
| | | Al₂O₃ | 1.14 | -do- |
| | | Fe₂O₃ | 0.39 | -do- |

| | | | | |
|---|-----------|--------------------------------|------|------|
| | | FeO | Nil | -- |
| | | MgO | 1.13 | -do- |
| 4 | FLUE DUST | Total Fe | 52.5 | -do- |
| | | SiO ₂ | 3.92 | -do- |
| | | CaO | 4.23 | -do- |
| | | MgO | 0.97 | -do- |
| | | Al ₂ O ₃ | 3.40 | -do- |
| | | K ₂ O | 1.2 | -do- |

PART – G

WASTE MATERIAL RECYCLED IN SINTER PLANT DURING 2016-17

| S. N. | WASTE MATERIAL | QTY (In Tonne) |
|-------|---------------------|----------------|
| 1 | LIME DUST/ ESP DUST | 8100 |
| 2 | MILL SCALE | 62410 |
| 3 | FLUE DUST | 59387 |
| 4 | L.D.SLAG DUST | 134090 |

PART - H
SECONDARY SCHEMES FOR AIR

| S. N. | AREA | SCHEMES |
|-------|---------------|---|
| 1 | COKE OVEN | Battery #7 is under rebuilding. Expected to be commissioned by Oct'2017. Battery #8 is also under rebuilding. The construction work is in progress. |
| 2 | SINTER PLANT | Installation of ESP in half band of M/C-3 completed. 2 nd Stage approval has been obtained for replacement for remaining Battery cyclones by ESPs. |
| 3 | BLAST FURNACE | ESP based de-dusting system has been installed in BF #2. Dry Fog dust suppression system installed in PSD-1 |
| 4 | SMS | Secondary emission control system is to be installed in SMS#1. |

SCIENTIFIC GREEN BELT DEVELOPMENT INSIDE AND OUTSIDE THE PLANT

TOTAL NO. OF TREES PLANTED IN TOWNSHIP TILL DATE - 3512402
TOTAL NO. OF TREES PLANTED IN WORKS TILL DATE - 709350

TOTAL NO. OF TREES PLANTED INSIDE BSL QUARTERS
IN VARIOUS SECTORS TILL DATE - 42400

TOTAL - 4264152

(New replacement plantation is also going on)