G.S.R. 46(E). – In exercise of the powers conferred by sections 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules further to amend the Environment (Protection) Rules, 1986, namely:

- These rules may be called the Environment (Protection) First Amendment Rules, 2006.

- They shall come into force on the date of their publication in the Official Gazette or otherwise as mentioned.

2. In the Environment (Protection) Rules, 1986, in Schedule I, –

(VI) in serial number 79, relating to ‘Coke Oven Plants (by product recovery type)', for the existing entries, the following entries shall be substituted, namely:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>79</td>
<td>Coke Oven Plants (by product recovery type)</td>
<td>New Batteries (At Green Field Site)</td>
<td>Rebuild Batteries</td>
<td>Existing Batteries</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Fugitive Visible Emissions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) Leakage from door</td>
<td>5 (PLD)*</td>
<td>10 (PLD)*</td>
<td>10 (PLD)*</td>
</tr>
<tr>
<td></td>
<td>(b) Leakage from charging lids</td>
<td>1 (PLL)*</td>
<td>1 (PLL)*</td>
<td>1 (PLL)*</td>
</tr>
<tr>
<td></td>
<td>(c) Leakage from AP Covers</td>
<td>4 (PLO)*</td>
<td>4 (PLO)*</td>
<td>4 (PLO)*</td>
</tr>
<tr>
<td></td>
<td>(d) Charging emission (second/charge)</td>
<td>16 (with HPLA)*</td>
<td>50 (with HPLA)*</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>Stack Emission of Coke Oven</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) SO₂ (mg/Nm 3)</td>
<td>800</td>
<td>800</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>(b) NOₓ (mg/Nm 3)</td>
<td>500</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td>(c) SPM (mg/Nm 3)</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>(d) SPM emission during charging – for stamp charging batteries (stack emission mg/Nm 3)</td>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>(e) SPM emission during coke pushing (stack emission) gm/ton of coke</td>
<td>5</td>
<td>5 (Applicable to stationary land based system)</td>
<td>-</td>
</tr>
</tbody>
</table>
For control of emissions and to maintain environmental quality in work zone area, the following guidelines shall be followed, namely:

1. New coke oven units shall follow any of the low-emission procedures, such as, coke dry cooling, non-recovery coke-ovens, Indirect Quenching Process, Jumbo coke oven reactor, Modified Wet Quenching System with appropriate environmental controls (e.g. baffles, filtering media, collection and treatment of residual water from quench tower and recycling; Treated effluent conforming to the effluent discharge standards can be used for quenching. Use of untreated process water as quenching water shall not be permissible).

2. Effective pollution control measures e.g. Extensive maintenance and cleaning of oven doors and frame seals, ascension pipes, charging holes and lids and other equipment; On-main charging system (HPLA); Luting charging holes with clay-suspension; Modified guide/transfer car with emission control system etc. shall be used to reduce coal charging and coke pushing emissions.

3. During rebuilding or installing new coke oven batteries, the following clean technology and pollution control measures be adopted:
   a. air-cooled self-sealing doors;
   b. the hydro-jet cleaning system shall be provided for the door and door frame cleaning with a facility of hydro-jet pressure of 600 kg/cm$^2$;
   c. the charging should be accomplished with hermetically sealed charging sleeves and screw feeder in charging car. The charging car should also be equipped with magnetic lid lifter and lid and frame cleaning mechanism (applicable to top charge batteries);
   d. to provide aspiration through high pressure ammonia liquor (HPLA) injection in goose neck and emission should be transferred directly to gas collecting mains;
   e. water sealed AP covers should be provided;
   f. computerized combustion control and moisture control systems.

4. In addition to the above the new coke oven batteries, which will be installed after the date of publication of this notification at green field site and rebuild batteries wherever technically feasible should also be equipped to treat their pushing emissions with stationary land-based system with collection hood and wet scrubbing units for gas cleaning.

5. In the case of existing coke ovens with wet quenching, the new procedures as in (i) and (ii) shall be adopted.

6. The fugitive visible emission standards i.e. PLD*, PLL*, PLO*, charging emission (second/charge).

Note: Units set up after the publication of this notification shall be treated as new units.

* HPLA - Aspiration through high pressure liquor injection in gooseneck;
Clean Technology and Guidelines for Pollution Prevention for Blast Furnace of Steel Industry

Clean Technologies for Blast Furnace

1. Direct injection of reducing agents.
2. Energy recovery of top BF gas pressure where prerequisites are present.
3. Energy saving through computer-aided Hot Stove operation
4. Use of Tar-free runner linings.
5. Blast Furnace gas treatment with efficient dedusting:
   
   • Coarse particulate matter (flue dust) shall be reused.

   • Subsequently fine particulate matter shall be removed by means of
      
      a scrubber or,

      a wet ESP or,

      an equally effective method,

   so that, residual particulate matter concentration in the cleaned BF gas shall be less than 10 mg/Nm ³ is achieved.

6. Emissions shall be minimized by covering the runners, ladle charging points etc.
7. Cast house dedusting catering tap holes, runners, skimmers, ladle charging points etc.
8. Suppression of fugitive emissions using nitrogen gas or any other inert gas depending upon
   the design of the cast house.
9. Treatment method for BF Gas Cleaning Plant sludge for recycle / reuse is:
   
   • Hydro cyclones for sludge with subsequent reuse of coarse fraction when grain size
     distribution allows reasonable separation.

10. Slag treatment

   • Preferably by means of granulation where market conditions favor.

   • Condensation of fumes or equally effective method shall be used, if odor reduction is required.

Guidelines for Pollution Prevention for Blast Furnace

1) Control of Fugitive Emissions

   • Fugitive emissions from material handling, conveying and screening operations shall be
     evacuated in closed systems and extracted by Fabric filters or ESPs or equally effective
Existing pollution control systems shall be operated as an integral part of production to ensure minimum emissions. Timely evacuation of dust (from Dust catchers, ESPs, Bagfilter hoppers etc.) shall be routinely organized.

Fugitive emissions shall be controlled by controlled wetting and/or by the use of crust formers.

Blast Furnace flue dust, collected within the dust catchers shall be evacuated using closed vessels or employing equally effective methods to minimize fugitive dust.

2) Control of Effluent Discharges

Waste water discharges from Blast Furnace complex shall be utilized for internal use at cast house slag granulation, slag quenching etc., without letting them to meet any outfalls.

Discharges from Blast Furnace complex which are not reused, shall meet outfall, only after conforming to the above specified effluent discharge standards.

3) Control of Noise

The areas where high noise levels persist continuously for a significant period of time like Tuyers area, Gas Cleaning Plant area, stoves area etc. shall be earmarked as High Noise Zone areas and accordingly it shall be displayed at appropriate places for warning employees. Through Integrated Maintenance Management system, necessary care shall be taken to minimize the noise at these areas.

Employees who are continuously exposed to high noise levels shall be provided with earplugs or earmuffs.

Appropriate measures shall be taken, so that employees are not getting exposed to higher noise levels for a significant period of time.

Noise levels at various areas of BF complex shall be regularly monitored and reviewed.

Areas like operating cabinets/control rooms etc. where continuous exposure cannot be avoided, necessary care shall be taken to insulate them from the surroundings.

4) Solid Wastes Management

All efforts shall be made to minimize the generation of wastes and maximize the effective utilization of wastes.

Wherever it becomes unavoidable, except resorting to option of dumping, in such cases, the wastes shall be disposed under controlled conditions.

All the wastes from the pollution control systems or treatment units shall be reused or recycled to the extent possible.

Disposal of wastes shall be done in such away that the pressure on land and subsequent land contamination shall be progressively brought to the minimum.

Minimum targets for total BF slag utilization for existing units shall be as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>70%</td>
</tr>
<tr>
<td>2006</td>
<td>80% and</td>
</tr>
<tr>
<td>2008</td>
<td>100%</td>
</tr>
</tbody>
</table>

New Units shall plan accordingly and meet the target of 100% utilization, from inception stage itself.

Wherever Cast house slag granulation facility cannot be provided due to the constraints of space and other logistics, slag shall be utilized through off-site slag
granulation so as to meet the above levels.

- Crushed and screened air cooled BF Slag shall be used in road construction, if feasible.
- Minimum targets for BF flue dust utilization for existing units shall be as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>70%</td>
</tr>
<tr>
<td>2006</td>
<td>80% and</td>
</tr>
<tr>
<td>2008</td>
<td>100%</td>
</tr>
</tbody>
</table>

- New Units shall plan accordingly and meet the target of 100% utilization, from inception stage itself.
- Minimum targets for BF Gas Cleaning Plant (GCP) Sludge utilization for existing units shall be as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>30%</td>
</tr>
<tr>
<td>2008</td>
<td>40% and</td>
</tr>
<tr>
<td>2009</td>
<td>50%</td>
</tr>
<tr>
<td>2010</td>
<td>80%</td>
</tr>
</tbody>
</table>

- New Units shall plan accordingly and meet the target of 80% utilization, from inception stage itself.

**Clean Technology and Guidelines for Pollution Prevention for Steel Making Shop (BOF) of Steel Industry**

**Clean Technology for Steel Making-Basic Oxygen Furnace (BOF)**

1. Particulate matter abatement from hot metal pre-treatment (including hot metal transfer processes, desulphurisation and deslagging) by means of effective utilization of fabric filters or ESPs.

   - BOF gas recovery and primary dedusting, applying:

   - Suppressed Combustion

   - Scrubbing and,

2. Dry Electrostatic Precipitation
3. Clean BOF gas shall be used subsequently as a gaseous fuel in the steel plant. In case of full combustion type, facility for recovery of sensible heat of the flue gases may be provided.
4. Collected dusts and / or sludges shall be recycled as much as possible taking into consideration the heavy metal content of dust/ sludge.
5. Secondary dedusting facilitating through;

   - Efficient evacuation during charging and tapping with subsequent cleaning by means of fabric filters or ESPs or any other equally effective method.
• Efficient evacuation during hot metal handling (ladling and reladling operation),
deslaging of hot metal and secondary metallurgy, with subsequent cleaning by means
of fabric filters or any other equally effective method.

6. Recycling of scrubbing water as much as possible after coagulation and sedimentation of
suspended solids.
7. Centralised vacuum cleaner for cleaning dust depositions in the upper floors of converter
where bulk material handling operations take place.
8. Minimize waste generation and implement efficient waste management.

Guidelines for Pollution Prevention for Steel Making-Basic Oxygen Furnace (BOF)

1) Fugitive emissions

• Fugitive emission from material handling, conveying and screening operations shall be
  evacuated in closed systems and extracted by Fabric filters or ESPs or any equally effective
  methods.
• Existing pollution control systems shall be operated as an integral part of production to ensure
  minimum emissions. Timely evacuation of dust (from Dust catchers, ESPs, Bagfilter hoppers
  etc.) shall be routinely organized.
• Fugitive emissions shall be treated by dampening and/or by the use of crust formers.
• Dust extraction system or equally effective methods shall be provided at the torpedo ladle hot
  metal discharging areas (wherever feasible) to avoid high fugitive emissions during unloading
  of hot metal.
• Suitable control arrangements shall be made operable to facilitate immediate closing of the
  converter hood on start of lancing operation, to avoid high fugitive emissions.

2) Effluent discharge

• Any discharge from BOF complex shall be utilized for internal use or recycling, without letting
  them to meet any outfalls.
• Discharges from BOF complex which are not reused, can only meet outfall, only after
  conforming to the above specified effluent standards.

3) Noise

• The areas where high noise levels persist continuously for a significant period of time e.g Gas
  Cleaning Plant area, etc. shall be earmarked as High Noise Zone areas and accordingly it shall
  be displayed at appropriate places for warning employees. Through Integrated Maintenance
  Management system, necessary care shall be taken to minimize the noise at these areas.
• Employees who are continuously exposed to high noise levels shall be provided with earplugs
  or earmuffs.
• Appropriate measures shall be taken that employees are not getting exposed to higher noise
  levels for a significant period of time.
• Noise levels at various areas of BOF complex shall be regularly monitored and reviewed.

4) Solid Wastes Management

• All efforts shall be made to minimize the generation of wastes and maximize the effective
  utilization of wastes.
• Wherever it becomes unavoidable, except resorting to option of dumping, in that cases, the
  wastes shall be disposed under controlled conditions.
• All the wastes from the pollution control systems or treatment units shall be reused or recycled
to the extent possible.

- Disposal of wastes shall be done in such away that the pressure on land and subsequent land contamination shall be progressively brought to the minimum.
- Minimum targets for total slag utilization for existing units shall be as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>70%</td>
</tr>
<tr>
<td>2006</td>
<td>80% and</td>
</tr>
<tr>
<td>2008</td>
<td>100%</td>
</tr>
</tbody>
</table>

New Units shall plan accordingly and meet the target of 100% utilization, from inception stage itself.

- SMS Slag shall be used as rail ballast or recycled through Sinter Plant and/ or blast furnace.
- Minimum targets for utilization of BOF dust/sludge for existing units shall be as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>30%</td>
</tr>
<tr>
<td>2008</td>
<td>40%</td>
</tr>
<tr>
<td>2009</td>
<td>50%</td>
</tr>
<tr>
<td>2010</td>
<td>80%</td>
</tr>
</tbody>
</table>

New Units shall plan accordingly and meet the target of 80% utilization, from inception stage itself.

**Proposed Environmental Standards for Blast Furnace and Steel Melting Shop (Basic Oxygen Furnace-BOF) of Steel Industry**

**Blast Furnace (Iron making route)**

**Emission Standards**

**Stack Emissions**

**Table 1**

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Parameter</th>
<th>Existing Unit</th>
<th>New Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>BF Stove</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>i) Particulate Matter (mg/Nm 3)</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>ii) SO₂ (mg/Nm 3)</td>
<td>250</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>ii) NO x (mg/Nm 3)</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>iii) CO (v/v)</td>
<td>1% (Max)</td>
<td>1% (Max)</td>
</tr>
<tr>
<td>2.</td>
<td>Space Dedusting /Other stacks of BF area</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>i) Particulate Matter (mg/Nm 3)</td>
<td>100</td>
<td>50</td>
</tr>
</tbody>
</table>

**Fugitive Emissions**

**Table 2**
### Monitoring Locations for fugitive emissions

Monitoring shall be carried out at the following locations:

#### Table 3

<table>
<thead>
<tr>
<th>Area</th>
<th>Monitoring Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highline / Stock house / Material Handling Sections</td>
<td>Transfer Points, Saddle conveyor, Vibro feeder and Screening area</td>
</tr>
<tr>
<td>Cast house</td>
<td>Hot metal tapping area, Ladle pouring area</td>
</tr>
</tbody>
</table>

a. The measurement may be done, preferably on 8-hour basis with high volume sampler. However, depending upon the prevalent conditions at the site, the period of measurement can be reduced.  

b. v/v mean volume /volume for carbon monoxide of stack emissions  

c. Fugitive emission shall be monitored at specified locations as above at different levels and within a distance of 7m to 10 m away from the source of emission or from suction hood connected to control system.

### Effluent Discharge

Waste water discharges from Blast Furnace, Effluent Treatment Plant (ETP) shall meet the Standards given in Table 4 at outlet.

#### Table 4

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Parameter</th>
<th>Existing Unit</th>
<th>New Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)</td>
<td>pH</td>
<td>6-8.5</td>
<td>6-8.5</td>
</tr>
<tr>
<td>ii)</td>
<td>Suspended Solids(mg/l)</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>iii)</td>
<td>Oil &amp; Grease (mg/l)</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>iv)</td>
<td>Cyanide as CN - (mg/l)</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>v)</td>
<td>Ammoniacal Nitrogen as NH 3 -N (mg/l)</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

Note:
i. For facilitating the compliance of the standards and pollution prevention at source the guidelines / code of practice issued by the Central Pollution Control Board should be followed.

ii. New units – all new Greenfield and installed in replacement of existing units during expansion / modernization.
   Existing units – already in operation

iii. The standards will be applicable after one year from the date of notification to all new, green field units set up after the date of this notification and all expansion/ modernisation of existing units taken up after the date of the notification. However, the existing units shall install effective pollution control system within one year and shall conform to the standards, after one year of the date of notification.

Environmental Standards for Steel Making–Basic Oxygen Furnace (BOF)

Emission Standards

Stack Emissions

Table 1

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Parameter</th>
<th>Existing Unit</th>
<th>New Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Non Recovery type Converters</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Particulate Matter (mg/Nm$^3$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>During blowing / lancing operation</td>
<td>300</td>
<td>Should be of recovery type</td>
</tr>
<tr>
<td></td>
<td>During Normal operation</td>
<td>150</td>
<td>Should be of recovery type</td>
</tr>
<tr>
<td>2.</td>
<td>De-dusting of De-sulphurisation, Secondary refining etc.</td>
<td>100</td>
<td>50</td>
</tr>
</tbody>
</table>

Fugitive Emissions

Table 2

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Parameter</th>
<th>Existing Unit</th>
<th>New Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)</td>
<td>Respirable Particulate Matter (PM10 - microgram/m$^3$)</td>
<td>1500</td>
<td>500</td>
</tr>
<tr>
<td>ii)</td>
<td>Suspended Particulate Matter (Total dust- microgram/m$^3$)</td>
<td>2000</td>
<td>2000</td>
</tr>
<tr>
<td>iii)</td>
<td>SO$_2$ (microgram/m$^3$)</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>iv)</td>
<td>NO x (microgram/m$^3$)</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>v)</td>
<td>CO (microgram/m$^3$) -8 hr</td>
<td>5000</td>
<td>5000</td>
</tr>
<tr>
<td></td>
<td>CO (microgram/m$^3$) -1 hr</td>
<td>10000</td>
<td>10000</td>
</tr>
<tr>
<td>vi)</td>
<td>Lead as Pb in dust (microgram/m$^3$) (Converter floor locations only)</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Monitoring Locations

Monitoring shall be carried out at the following locations:
Table 3

<table>
<thead>
<tr>
<th>Area</th>
<th>Monitoring Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk material handling</td>
<td>Saddle conveyor, Vibro feeder</td>
</tr>
<tr>
<td>Ferro Alloy handling</td>
<td>Ferro alloy discharge area</td>
</tr>
<tr>
<td>Converter</td>
<td>Converter floor</td>
</tr>
<tr>
<td>Secondary refining</td>
<td>Secondary treatment areas</td>
</tr>
<tr>
<td>Mixer building</td>
<td>Pouring and tapping area</td>
</tr>
<tr>
<td>De-sulphurisation unit</td>
<td>De-sulphurisation area</td>
</tr>
</tbody>
</table>

a. The measurement may be done, preferably on 8-hour basis with high volume sampler. However, depending upon the prevalent conditions at the site, the period of measurement can be reduced.

b. v/v mean volume /volume for carbon monoxide of stack emissions

c. Fugitive emission shall be monitored at specified locations as above at different levels and within a distance of 7m to 10 m away from the source of emission or from suction hood connected to control system.

Effluent Discharge

Effluent discharge from BOF-ETP outlet shall meet the Standards given in Table 4 at ETP outlet.

Table 4

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Parameter</th>
<th>Existing Unit</th>
<th>New Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)</td>
<td>pH</td>
<td>6-8.5</td>
<td>6-8.5</td>
</tr>
<tr>
<td>ii)</td>
<td>Suspended Solids (mg/l)</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>iii)</td>
<td>Oil &amp; Grease (mg/l)</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

Note:

i. For facilitating the compliance of the standards and pollution prevention at source the guidelines / code of practice issued by the Central Pollution Control Board should be followed.

ii. New units – all new Greenfield and installed in replacement of existing units during expansion / modernization.

   Existing units – already in operation

iii. The standards will be applicable after one year from the date of notification to all new, green field units set up after the date of this notification and all expansion/ modernisation of existing units taken up after the date of the notification. However, the existing units shall install effective pollution control system within one year and shall conform to the standards, after one year of the date of notification.

Existing Standards for Stone Crushers

The standards notified under EPA notification G.S.R. 742(E) dated 30th August 1990 & S.O.8(E) dated December 31, 1990, for stone crushers are given below:

(i) Quantitative Standard for the SPM
The suspended particulate matter measured between 3 to 10 metres from any process equipment of a stone crushing unit shall not exceed 600 mg/m$^3$.

(ii) Implementation of the following pollution prevention measures

- Dust containment cum suppression for the equipment
- Construction of wind breaking walls
- Construction of the metalled roads within the premises
- Regular cleaning and wetting of the ground within the premises
- Growing of a green belt along the periphery

Proposed Environmental Standards (Revised) for Stone Crushers

Emission Standards (Fugitive)

The quantitative standard for suspended particulate matter (SPM) measured at 40m distance (or at boundary of crushe, whichever is lesser) not to exceed 600 mg/m$^3$ from the primary vibratory/rotary screen. The measurement should be done on 8-hour basis with high volume sampler at 40 m distance with reference to the center of the main (primary) vibratory/rotary screen.

In case any dust extraction cum control system has been employed, the emissions measured at the stack not to exceed 150 mg/Nm$^3$ (Particulate Matter).

Note: In case the stone crushing unit don’t operate continuously on full capacity for 8 hours then in that case the time for measurement can be reduced accordingly. It shall be ensured that the stone crusher should run on full capacity during monitoring.

Guidelines/Code of Practice for Pollution Prevention & Control for Stone Crushers

Guidelines/Code of Practice for Air Pollution Prevention & Control for Stone Crushers

The loading, unloading, handling and storage of raw material/products, waste or by-products should be carried out so as to minimize the release of dust emissions and covering should be provided, while transpiration and storage.

The following control measures are recommended for pollution prevention and control:

Provide enclosures / containment for following process equipments:

- The crushers (primary, secondary & tertiary) including outlet points
- Total enclosures for the screens (vibratory/rotary)
- Enclosure for transfer points of belt conveyors

The above enclosures shall be rigid (and not of flexible cloth type enclosures) and to be fitted with self-closing doors and close fitting entrances and exits. Where conveyors pass through the enclosures, flexible covers should be installed at entries and exits of the conveyors to the enclosures minimizing the gaps around the conveyors.

A. Provide wet or dry type or combination type dust control arrangement as per following guidelines:

In **wet system**, provide water sprays / sprinklers at following strategic locations for dust suppression.
• On the raw material prior to unloading
• Raw material unloading hopper / well
• Inlet feeder / chute to the primary crusher
• Belt conveyor discharge / transfer points
• Crusher discharge locations
• Inlet feeder / chute, secondary / tertiary crushers
• Transfer points / hopper / grizzly feeder

The wet suppression system should comprise of fixed water storage tank, a pump, an on-line self-cleaning type dual water filter unit, pressure gauge, connecting pipelines, & water spray nozzles.

B. In case, dry dust extraction cum control system is necessary / required (where wet suppression system has limitations), especially for large size stone crushing units, following key locations may be provided with dust extraction arrangement:

• Crusher discharge areas,
• Transfer points,
• Screen

An induced draft fan driven by a motor and an efficient air pollution control equipment or combination of equipments should be installed to meet stack emission standards. The stack should be provided with porthole and sampling platform arrangement for stack monitoring.

In combination (dry & wet) suppression cum extraction and control system, water sprays may be applied at some points (unloading point, primary crusher feeder chute and primary crusher discharge chute) & for other points (such as secondary / tertiary crusher outlets and transfer points) appropriate secondary enclosures and hooding arrangement may be provided. An induced draft fan driven by a motor and an efficient air pollution control system should be installed and finally emissions be discharged through chimney. The chimney should be provided with porthole and sampling platform for stack monitoring.

2.0 Other Pollution Prevention Measures

Wind breaking walls

Provide wind breaking walls of rigid material around three sides of the stockpiles, leaving only one side open for loading trucks. The walls can be erected radially with screen as center point. The height of the walls should be at least half the height of discharge point of belt conveyors to the stockpiles.

Construction & Maintenance of haul road within the premises

The haul roadways for the transportation of raw material and finished products from entrance of the crushing plant up to unloading & loading location shall be paved or hard surfaced. All active roads
within premises should be periodically wetted.

**Periodical cleaning of ground and wetting of stockpiles**

The surface of all stockpiles of aggregates shall be kept sufficiently wet by water spraying. Scattered stones gathered beneath belt conveyors, inside and outside enclosures shall be cleared regularly.

**Green Belt Development**

All stone crushers, small or big, permanent or temporary, should plant 2 rows of leafy trees (as suitable to local conditions) all around the plant premises, with a maximum spacing of 3 meter between trees. Total number of minimum trees to be planted would be calculated as “units premise outermost perimeter divided by 3 (all in meters) multiplied by 2”. Unit should keep record of number of trees planted, date when planted, type of trees and rate of their growth annually.

**3.0 Guidelines to evolve the siting criteria**

- According to the National Highways criteria prescribed by Indian Roads Congress, for siting of stone crushers a minimum distance between the center of Highway to the nearest boundary of the stone crusher should be at least 75 metre and the vibratory screen should further away at least by 40 metre inside the stone crusher boundary limits. The same criteria can be applicable for major district road, village road and other roads.
- For a stone crusher cluster, which would generally occupy an area exceeding 5 hectares the “Environmental Guidelines” of Ministry of Environment & Forests, under Environment (siting of Industrial Projects) Rules, 1999, shall apply, which specifies minimum distance of 0.5 kilometer (500 Metres) on either side of National Highways and Railway Lines.
- For siting of stone crushers, the environmental sensitive locations within 5 kilometers radius should be identified and it should be ensured that the sensitive locations like hospitals, school, residential area, village, air port, railway station, tourist spot of National importance, historic monuments etc. should not face any environmental impact by the proposed stone crusher unit(s). Environmental Impact Assessment to this effect should be carried out to set up siting criteria for proposed locations, which can vary from place to place.

**4.0 Operation and Maintenance Guidelines**

- All spraying system components shall be maintained in good condition and shall be used all the time. The flow rate and operating pressure of the water shall be sufficient to suppress dust emissions from the corresponding sources. The spraying system shall be able to cover the areas of emission points concerned.
- The dust extraction and collection system shall be routinely inspected and maintained in good condition and shall be used as required.
- The owner shall conduct an inspection of the dust extraction and control system at least once every month on the inspection items. (Refer Annexure 1).
- A high standard of housekeeping shall be maintained. Any piles of materials accumulated on or around the plant shall be cleaned up regularly.
- Malfunctioning or breakdown of equipment leading to abnormal emissions shall be dealt with promptly. In any case, the abnormal emission due to equipment failure shall be stopped as soon as possible and the crushing activity should not be operated till the air pollution control equipment are put in operation.

**5.0 Sampling and Monitoring Guidelines**

8 hourly average concentration of total suspended particulate matter in ambient air shall be monitored.
at 40 metre distance from the primary vibratory/rotary/screen or the site boundary whichever lesser using, high volume sampler instrument.

**Note**: In case the stone crushing unit don't operate continuously on full capacity for 8 hours then in that case the time for measurement can be reduced accordingly. It shall be ensured that the stone crusher should run on full capacity during monitoring.

The sampling shall conform to the United State Environmental Protection Agency's Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere (High-volume Method) and shall be conducted at a frequency of not less than twice annually. The measurement results be documented/recorded and should be furnished to the regulatory authority whenever requested. The flow rate should not be less than 1.1 m$^3$/min.

### 6.0 Reporting and Record Keeping Guidelines

- The stone crusher should submit basic information about the crusher set-up including the dust control arrangements at the time of applying for consent to establish, consent to operate or renewal of consent (as per guidelines given at format – A)
- The SPM monitoring report should be submitted every year at the time of renewal of consent and should include following information
  - Date & Duration of Monitoring
  - Location of HVS Samplers with respect to Primary Screen.
  - Meteorological Data on Wind Direction, Wind Velocity & Ambient Temperature
  - Initial & final weight of the Filter Papers
  - Average Flow (m$^3$/min) and running time during monitoring
  - SPM Concentration at the stone crusher

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**GAZETTE OF INDIA**

**EXTRAORDINARY**

**PART-II-SECTION 3-SUB-SECTION I**

**PUBLISHED BY AUTHORITY**

**NO. ] NEW DELHI , -------DATE-------------------**

**MINISTRY OF ENVIRONMENT & FORESTS**

**NOTIFICATION**

**NEW DELHI , ------ DATE------**

G.S.R. (E) - In exercise of the powers conferred by Sections 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following Rules further to amend the Environment (Protection) Rules, 1986, namely :-

1. These rules may be called the Environment (Protection) Second Amendment Rules, 2006.
2. They shall come into force on the date of their publication in the Official Gazette or otherwise as mentioned.

2. In the Environment (Protection) Rules, 1986 in schedule I:-

After Serial No.____ and entries relating thereto, the following serial No. and entries shall be inserted, namely :-
SCHEDULE-I

1.0 Environmental Standards For Iron Ore Mines

Part A: Emission Standards

I Stack Emission from De-dusting units

<table>
<thead>
<tr>
<th>Parameter</th>
<th>De-dusting Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particulate Matter (PM)</td>
<td>100 mg/Nm³</td>
</tr>
</tbody>
</table>

The height of the stack attached to the de-dusting system should be at least 2.5 m above the nearest building height. The stack height should not be less than 30 m. Sampling portholes and platforms shall be provided as per the CPCB guidelines to facilitate stack monitoring as per Emission Regulation Part III of CPCB.

Stacks attached with the power generating units / DG Sets shall follow the existing stack emission standards and guidelines for the Power Plants/ DG Sets.

II Fugitive Emissions

Fugitive emission levels of Suspended Particulate Matter (SPM) and Respirable Particulate Matter (RPM) from the dust generation sources identified and mentioned below in table -1, should not exceed 1200 mg/m³ and 500 mg/m³ respectively at a distance of 25 m (± 5 m) from the source of generation in downwind direction considering the predominant wind direction.

<table>
<thead>
<tr>
<th>Area</th>
<th>Monitoring Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mine face / benches</td>
<td>Drilling, Excavation &amp; Loading</td>
</tr>
<tr>
<td></td>
<td>(Not required for benches operating below water tables. However, applicable operating benches above water table)</td>
</tr>
<tr>
<td>Haul Roads / Service Roads</td>
<td>Haul roads leading to Ore Processing Plant, Waste dumps &amp; Loading areas and Service Roads.</td>
</tr>
<tr>
<td>Crushing Plant</td>
<td>Run off mine unloading at Hopper, Crushing Areas, Screens, Transfer Points</td>
</tr>
<tr>
<td>Screening Plant</td>
<td>Screens, Transfer Points</td>
</tr>
<tr>
<td>Ore Storage &amp; Loading</td>
<td>Intermediate Stock Bin / Pile areas, Ore stock bin / pile areas, wagon / truck loading areas</td>
</tr>
<tr>
<td>Waste Dump Areas</td>
<td>Active waste / reject dumps</td>
</tr>
</tbody>
</table>

The measurement shall be done, preferably on 8-hour basis in any working shift. However, depending upon the prevalent conditions at the site, the period of measurement can be reduced.

Part B: Effluent Discharge Standards

I. Effluent Discharge Standards
The quality of effluent discharged from iron ore Mining, beneficiation and associated activities or any other discharges leaving the mining lease boundary, to natural river / stream / water bodies / sewer / land to confirm to the following standards given in the Table - 2 below.

### Table - 2

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Maximum Permitted Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>6.0 – 9.0</td>
</tr>
<tr>
<td>Suspended Solids</td>
<td>50 mg/l *</td>
</tr>
<tr>
<td></td>
<td>200 mg/l - during monsoon</td>
</tr>
<tr>
<td>Oil &amp; Grease</td>
<td>10 mg/l</td>
</tr>
<tr>
<td>Dissolved Iron as Fe</td>
<td>2 mg/l</td>
</tr>
<tr>
<td>Manganese</td>
<td>2 mg/l</td>
</tr>
</tbody>
</table>

* Existing iron ore mines are allowed up to 100 mg/l for one year from the date of notification to upgrade existing treatment facilities / installation new facilities.

### Part C: Noise & Airblast Standards

#### I Noise Level Standards

The noise levels in the mining and other associated activities shall not exceed the following limits:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Maximum allowable Leq. dB(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Day time (6.00 AM to 10.00 PM)</td>
</tr>
<tr>
<td>Noise Level – Leq</td>
<td>75 dB(A)</td>
</tr>
</tbody>
</table>

Noise levels shall be monitored both during day and night times on the same day while in operation. The noise measurements to be taken outside the broken area, boundary of ore processing & material handling areas, which include mine site & general offices, statutory buildings, workshops, stores etc.

In addition to this, occupational exposure limit of noise specified by the Director General of Mines Safety (DGMS) shall be complied with by the iron ore mines.

#### II. Airblast Standard

Airblast level resulting from basting on any premises or public place must not exceed 120 dB Linear, peak.

Ground vibrations from the blasting operation shall be within the permissible Peak Particle Velocity (ppv) specified by DGMS at the foundation levels of various types of structures in mining areas depending on dominant excitation frequencies.

**Note:**

1. For facilitating the compliance of the standards and pollution prevention at source the
2. The above standards will be applicable to new iron ore mines and expansion projects w.e.f the date of notification. However, the existing mines are allowed six month time from the date of notification to upgrade / install facilities to meet the standards.

Guidelines / Code of Practice for Pollution Prevention for Iron Ore Mines

Guidelines / Code of Practices for Pollution Prevention & Control at source for Iron Ore Mines

A. Dust Emissions

The following prevention & control measures shall be practiced in order to reduce the fugitive dust emissions in iron ore mines;

1. To control fugitive dust at source, wet drilling shall be practiced. Where there is scarcity of water, suitably designed dust extractor shall be provided for dry drilling along with the dust hood at the mouth of the drill hole collar.
2. Pre-wetting of blasting site shall be practiced or need to be done as far as possible.
3. Time of blasting be established to suit the local conditions. Avoiding blasting i.e., when temperature inversion is likely to occur and strong wind blows towards residential areas.
4. Conditioning of the ore with water (moisture content: 7.5 – 9.5 %) shall be practiced as a primary method to minimize the fugitive dust emissions without affecting flow of ore in the ore processing and handling areas.
5. Dust suppression and/or dust extraction systems shall be provided at crusher-hopper, crushing, screening, ore bunkers, transfer points, loading points & other strategic dust generating areas. Proper enclosures of crushing & screening areas, conveyors, transfer points etc. shall be provided in order to reduce the spread of air borne dust.
6. The ore, right from primary crusher to screening plant for further processing shall be transported through a system of closed conveyor belts in order to control the dust generation during transportation of ore at strategic transfer points.
7. At the iron ore stockpiles areas, atomized stationery mist spray of water or conditioning of ore with water shall be practiced to prevent the dust from getting air borne.
8. Appropriate transfer chutes shall be provided at ore discharge points at ore stock piles, loading points etc., to minimize the discharge height and spread of air borne dust.
9. Water sprinklers of fixed type shall also be provided at the mine HEMM maintenance shop, other service centers and approach roads from mine face / benches to crusher hopper to prevent the generation of dust to be air borne.
10. All the long life permanent haul roads shall be black- topped metal roads to the extent feasible.
11. Dust consolidation on mine haul roads, active OB dumps and mine working benches shall be done by spraying water through water sprinklers along with chemical binders/wetting agents at frequent interval in order to reduce water consumption, to improve retention & re-absorption capacity of water & effective dust consolidation.
12. During transportation of ore by trucks/tippers through public roads, the truck shall be properly covered with tarpaulin sheets/leak proof and shall ply at safe speed. The trucks/tippers shall have sufficient free board.
13. The speed of dumpers/trucks on haul roads shall be controlled as increased speed increases dust emissions. Overloading of transport vehicles shall be avoided.
14. Use of wheel wash facilities to minimize mud and dust track-out from unpaved approach roads to main paved and/or public roads.
15. Planting of trees all along main mine haul road and regular grading of haul roads shall be practiced to prevent the generation of dust due to movement of dumpers/trucks.
16. Green belt of adequate width shall be developed all around the perimeter of crushing and screening plant, ore stockpile & loading areas, boundaries of mine pits etc., when these are located close proximity to the villages and residential areas.
17. Re-vegetation of exposed surfaces shall be done as far as possible in mines. Techniques such
as hydro-seedling & use of geo-textiles shall be used on steep slopes and other difficult areas as a measure of soil erosion control and slope stabilization.

18. The operator's cabin in the drills, shovels, dumpers and other HEMMs shall be provided with dust proof enclosure and the persons working at high dust prone areas shall be provided with dust mask. In case of bigger capacity HEMMs, operators cabin shall be air-conditioned based with dust & noise proof enclosures as far as possible.

19. Proper house keeping at the mining, ore crushing & screening areas, loading & dispatch areas, service facilities, etc., shall be practiced.

20. The frequency of monitoring for fugitive emissions shall be specified by the State Pollution Control Boards/Pollution Control Committees.

B Effluent Discharge

In order to prevent water contamination in and around the iron ore mines, the following shall be practiced:

1. All efforts shall be made to re-use and re-cycle the treated effluents to the maximum possible extent in order to achieve zero effluent discharge.

2. At the beneficiation plant, process waste water to be recycled from the thickener overflow in order to reduce surface water pollution due to less discharge to the surrounding environment and less process water requirement. Thickener's underflow slurry may be sent to tailing pond for further solid-liquid separation.

3. Provision of a suitably designed tailing dam with reclamation of clarified water shall be provided to minimize the discharge and reduce the make-up water consumption.

4. In water scarce areas, recovery of tailing dam seepage water shall be provided by constructing seepage water collection ditch at the downstream side along with the re-circulation facilities.

5. Maximum recovery of iron ore fines/micro fines need to be encouraged by adoption of hydrocyclones, slow speed classifiers/or any other suitable method depending on nature of the deposit/ore feed in the wet beneficiation circuit in order to reduce slurry discharge and to increase the life of the tailing dam.

6. Surface run off during monsoon from the mining areas, waste dumps & other areas shall be properly collected & treated in a series of sedimentation basins before discharging into natural streams/water courses. Check dams shall be constructed at all strategic points to control the surface run off and carry over of suspended solids. Sedimentation ponds and check dams shall be de-silted at regular intervals during non monsoon periods.

7. Surface run off from the stockpile and loading areas shall be collected through network of drains and passed through sedimentation ponds and check dams before discharging into natural stream/water courses.

8. Pit water discharged from mines working below the water table shall be properly treated & used in ore beneficiation, dust suppression, etc. The treated pit water may be supplied to nearby villages for agricultural purposes if demand exists.

9. Domestic effluents shall be treated in properly designed oxidation ponds or by any other suitable treatment method.

10. Service centers, i.e., auto shops, HEMM shops, and other areas, wherein, water pollution due to wash outs of oil and grease and suspended solids are expected due to washing of light vehicles, HEMM etc., Effluent Treatment Plant shall be provided (oil catch pits / air flotation units and sedimentation tanks) for treatment of these effluents.

11. Rain water harvesting technique shall be practiced for conservation of water wherever feasible.

12. The monsoon period shall be specified by the concerned State Pollution Control Boards / Pollution Control Committees.

C. Ground Water

1. Mines operating below the water table shall monitor the ground water level [expressed in Reduced Level(RL), m] at the periphery of the mine pit by setting up in at least three
pizometree stations / wells (preferably 120° apart each other) to assess the impact of pumping out water on the ground water table.

2. Incase the Central Ground Water Board observes depletion in ground water table by appropriate action shall be taken to control the depletion.

D. Noise & Vibration

The following measures shall be practiced for reduction in noise from mining & associated activities, and ground vibration & airblast resulting from blasting operations;

1. Noise is best abated at source by selecting right machinery and equipment, by proper mounting of equipment, and by providing noise insulating enclosures or padding as far as possible.
2. Noise barriers shall be constructed between sources and affected areas (thick belt of trees around mine boundaries, waste dumps, hills and mountainous land forms can act as such barrier).
3. Lining noise-impacting components of processing plants (eg bins, hoppers, chutes) with resilient material to dampen vibrating surfaces.
4. Enclosing high noise sources (eg transfer points, vibratory screens, crushers) with high-mass acoustic enclosures.
5. Regular repair and maintenance of HEMMs, ore crushing, screening and loading plant equipment etc. as per the recommendation of the manufacturers.
6. Improved design mufflers of HEMMs proper enclosure of its engine part shall be provided.
7. Avoid secondary blasting by using hydraulic rock breakers, wherever feasible.
8. Safety fuse shall be covered with sand layer of 15 cm thick in order to reduce noise level during blasting operation.
9. Ground vibration, airblast and dust cloud resulting from the blasting operations, shall be minimized through (a) site-specific optimum blast design, (b) selecting right explosive matching with the nature of rocks to be blasted (c) reducing the maximum instantaneous charge per delay, (d) avoiding overcharging the holes, (e) adopting air-decking technique (wherever feasible), (f) use of delay detonators, (g) adopting in-hole initiation system, (h) proper stemming of holes and (i) adopting controlled blasting technique etc.

E. Solid Waste

The following guidelines shall be practiced during handling and disposal of various types of wastes generated from the iron ore mines;

1. The top soil (20-30cm) shall be removed separately and utilized for restoration or rehabilitation of land or stored in a separate heap for future use, duly covered with grass and vegetal cover to preserve its fertility / biomass.
2. Overburden( OB ) / Interburden (IB) / waste rocks shall be back filled into mine excavations to the maximum extent possible.
3. The OB / IB/waste rock dumps shall be located away from the natural nallas, rivers and on an impervious & non-mineralized area, to minimize the water pollution. Design and construction of the waste dumps shall be such that the completed out slopes do not exceed 28 degrees from horizontal to avoid excessive erosion and easy vegetation.
4. The OB/IB/waste rock dumps shall be properly dressed, bench, sloped at low angle with terracing and bamboo barricades in the slopes, making retaining walls/stone barriers at the toe of the dumps, gully plugging etc., to prevent the soil erosion during monsoon, besides establishing vegetation on dump top as well as its slope surface. In steep slopes, hydro-seeding technique or use of geo-textiles mat embedded with seeds shall be adopted.
5. To prevent fine particles from OB/IB/waste rock dumps getting washed off due to rains, every year, before onset of monsoon, deep garland type trenches all around the waste dump shall be
made to arrest the fine particles in the trenches. The accumulated water in the garland drains shall be passed through check dams/settling tanks to allow the silt to settle before final discharge. At the outlet of garland drains, proper de-silting arrangements shall be made before onset of monsoon.

6. Oil contaminated wastes like oil filters, oily muck, cotton wastes etc. generated from workshops, garages and other areas shall be disposed in secured landfills, specially designed for disposal of hazardous wastes.

7. Tailing ponds shall be located on impervious areas with deep water table. The ground underlying the dam must be structurally sound and able to bear the weight of the impoundment. Wherever possible, tailings shall be used for filling in the exhausted mine pits.

8. Efforts shall be made for use of tailings generated from wet beneficiation plant for making value added products like ceramic floor tiles, wall tiles, bricks etc.

9. The exposed tailing pond areas shall be properly covered with vegetation. The whole tailing pond area shall be covered through vegetation once the life of the pond is over.

In addition to the above, rules/guidelines/circulars issued under the Mineral Conservation & Development Rules (MCDR), DGMS and statutory authorities etc., shall be complied with.

F. Monitoring Frequency

The following frequency of monitoring for the various parameters specified in the standards shall be followed.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stack PM emission</td>
<td>Once in a month</td>
</tr>
<tr>
<td>SPM / RPM</td>
<td>Once in a month covering all the areas</td>
</tr>
<tr>
<td></td>
<td>(Not required during monsoon)</td>
</tr>
<tr>
<td>Effluent Quality</td>
<td>Once in a fortnight for all the effluents</td>
</tr>
<tr>
<td>Noise &amp; Airblast</td>
<td>Once in a month</td>
</tr>
<tr>
<td>Ground Water level</td>
<td>Once in a quarter for mines operating below</td>
</tr>
<tr>
<td></td>
<td>water table</td>
</tr>
</tbody>
</table>

G. Mine Reclamation & Rehabilitation

In order to prevent or minimize the long term adverse environmental impacts, and to create a self sustaining natural ecosystem, the mined out benches and pits shall be properly reclaimed and rehabilitated as per the approved Mine Plan / Scheme. The excavated mined out pits can be converted as a water body in a scientific way to facilitate water requirement for the plantation as well as for wildlife habitat. Progressive reclamation & rehabilitation of mined areas shall be practiced, wherever feasible, so that the exposed surfaces can be kept minimum all time, vis-a-vis rate of reclamation being similar to the rate of mining. Back filling of mined out pits and benches with overburden / interburden / waste rocks shall be done wherever feasible. All these areas shall be properly covered with top soil or other suitable soil cover with appropriate soil amendments and re-vegetated by planting suitable species. Selection of species for plantation shall be carried out in a scientific way, keeping in view the local / native species for self-sustaining development of productive ecosystem.

Environmental Standards for Coal Washeries

1. Fugitive emission standards

The difference in the value of suspended particulate matter, delta (D), measured between 25 and 30
metre from the enclosure of coal crushing plant in the downward and leeward wind direction shall not exceed 150 microgram per cubic meter. Method of measurement shall be High Volume Sampling and Average flow rate, not less than 1.1 m³/minute, using upwind downwind method of measurement.

2. Effluent discharge standards

- The coal washeries shall maintain the close circuit operation with zero effluent discharge.
- If in case due to some genuine problems like periodic cleaning of the system, heavy rainfall etc. it become necessary to discharge the effluent to sewer / land / stream then the effluent shall conform to the following standards at the final outlet of the coal washery:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Parameter</th>
<th>Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>pH</td>
<td>5.5 – 9.0</td>
</tr>
<tr>
<td>2.</td>
<td>Total suspended solids</td>
<td>100 mg/l</td>
</tr>
<tr>
<td>3.</td>
<td>Oil &amp; Grease</td>
<td>10 mg/l</td>
</tr>
<tr>
<td>4.</td>
<td>B.O.D. (3 days 27 deg C)</td>
<td>30 mg/l</td>
</tr>
<tr>
<td>5.</td>
<td>COD</td>
<td>250 mg/l</td>
</tr>
<tr>
<td>6.</td>
<td>Phenolics</td>
<td>1.0 mg/l</td>
</tr>
</tbody>
</table>

3. Noise level standards

- Operational / Working zone – not to exceed 85 dB(A) Leq for 8 hours exposure.
- The ambient air quality standards in respect of noise as notified under Environment (Protection) Rules, 1986 shall be followed at the boundary line of the coal washery.

4. Code of Practice for Coal Washery

- Water or water mixed chemical shall be sprayed at all strategic coal transfer points such as conveyors, loading / unloading points etc. As far as practically possible conveyors, transfer points etc. shall be provided with enclosures.
- The crushers / pulverisers of the coal washeries shall be provided with enclosures, fitted with suitable air pollution control measures and finally emitted through a stack of minimum height of 30 m, conforming particulate matter emission standard of 150 mg/Nm³ or provided with adequate water sprinkling arrangement.
- Water sprinkling by using fine atomizer nozzles arrangement shall be provided on the coal heaps and on land around the crushers / pulverisers.
- Area, in and around the coal washery shall be pucca either asphalted or concreted.
- Water consumption in the coal washery shall not exceed 1.5 cubic meter per tonne of coal.
- The efficiency of the settling ponds of the waster water treatment system of the coal washery shall not be less than 90%.
- Green belt shall be developed along the road side, coal handling plants, residential complex, office building an all around the boundary line of the coal washery.
- Storage bunkers, hoppers, rubber decks in chutes and centrifugal chutes shall be provided with proper rubber linings.
- Vehicles movement in the coal washery area shall be regulated effectively to avoid traffic congestion. High pressure horn shall be prohibited. Smoke emission from heavy duty vehicle operating in the coal washeries should conform the standards prescribed under Motor Vehicle Rules, 1989.

MINISTRY OF ENVIRONMENT AND FORESTS
NOTIFICATION

New Delhi, the 25th September, 2000

G.S.R. 742(E). – In exercise of the powers conferred by sections 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules further to amend the Environment (Protection) Rules, 1986, namely:

1. (1) These rules may be called the Environment (Protection) Amendment Rules, 2000.

(2) Save as otherwise provided in this notification, they shall come into force on the date of their publication in the Official Gazette.

2. In the Environment (Protection) Rules, 1986, –

(1) In Schedule I, after serial number 89 relating to Noise standards for fire crackers and the entries relating thereto, the following serial numbers and entries shall be inserted, namely:

"90. Standards for coal mines

1. Air Quality Standards

The Suspended Particulate Matter (SPM), Respirable Particulate Matter (RPM), (Sulphur dioxide (SO\textsubscript{2}) and Oxides of Nitrogen (NO\textsubscript{x}) concentration in downwind direction considering predominant wind direction, at a distance of 500 metre from the following dust generating sources shall not exceed the standards specified in the Table I, II and III given below.

Dust generating sources

Loading or unloading, Haul road, coal transportation road, Coal handling plant (CHP), Railway sliding, Blasting, Drilling, Overburden dumps, or any other dust generating external sources like coke ovens (hard as well as soft), briquette industry, nearby road etc.

Table I

<table>
<thead>
<tr>
<th>Category</th>
<th>Pollutant</th>
<th>Time weighted Average</th>
<th>Concentration in Ambient Air</th>
<th>Method of Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I New Coal Mines (Coal Mines commenced operation after the date of publication of this notification)</td>
<td>Suspended Particulate Matter (SPM)</td>
<td>Annual Average*</td>
<td>360 m g/m\textsuperscript{3}</td>
<td>• High Volume Sampling (Average flow rate not less than (1.1 \text{ m}^3/\text{minute})</td>
</tr>
<tr>
<td></td>
<td>Respirable Particulate Matter (size less than 10µm (RPM))</td>
<td>Annual Average*</td>
<td>500 m g/m\textsuperscript{3}</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>24 hours**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sulphur Dioxide (SO\textsubscript{2})</td>
<td>Annual</td>
<td>180 m g/m\textsuperscript{3}</td>
<td>Respirable Particulate Matter sampling and analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>250 m g/m\textsuperscript{3}</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>80 m g/m\textsuperscript{3}</td>
<td>1. Improved west and Gaeke</td>
</tr>
<tr>
<td>Category</td>
<td>Pollutant</td>
<td>Time weighted Average</td>
<td>Concentration in Ambient Air</td>
<td>Method of Measurement</td>
</tr>
<tr>
<td>----------</td>
<td>-----------</td>
<td>-----------------------</td>
<td>-----------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>II</td>
<td>Suspended Particulates Matter (SPM)</td>
<td>Annual Average* 24 hours**</td>
<td>430 m g/m³ 600 m g/m³</td>
<td>1. Improved west and Gaeke Method</td>
</tr>
<tr>
<td></td>
<td>Respirable Particulate Matter (size less than 10µm) (RPM)</td>
<td>Annual Average* 24 hours**</td>
<td>215 m g/m³ 300 m g/m³</td>
<td>Respirable Particulate Matter sampling and analysis</td>
</tr>
<tr>
<td></td>
<td>Sulphur Dioxide (SO₂)</td>
<td>Annual Average* 24 hours**</td>
<td>80 m g/m³ 120 m g/m³</td>
<td>1. Improved west and Gaeke Method</td>
</tr>
<tr>
<td></td>
<td>Oxide of Nitrogen as NO₂</td>
<td>Annual Average* 24 hours**</td>
<td>80 m g/m³ 120 m g/m³</td>
<td>1. Jacob &amp; Hochheiser Modified (Na-Aresnic) Method</td>
</tr>
</tbody>
</table>

Table III

<table>
<thead>
<tr>
<th>Category</th>
<th>Pollutant</th>
<th>Time weighted Average</th>
<th>Concentration in Ambient Air</th>
<th>Method of Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
### III

<table>
<thead>
<tr>
<th>Coal mines located in the coal fields of</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Jharia</td>
</tr>
<tr>
<td>- Raniganj</td>
</tr>
<tr>
<td>- Bokaro</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Suspended Particulates Matter (SPM)</th>
<th>Annual Average* 24 hours**</th>
<th>500 m g/m³ / 700 m g/m³</th>
<th>• High Volume Sampling (Average flow rate not less than 1.1 m³/minute)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respirable Particulate Matter (size less than 10µm) (RPM)</td>
<td>Annual Average* 24 hours**</td>
<td>250 m g/m³ / 300 m g/m³</td>
<td>Respirable Particulate Matter sampling and analysis</td>
</tr>
<tr>
<td>Sulphur Dioxide (SO₂)</td>
<td>Annual Average* 24 hours**</td>
<td>80 m g/m³ / 120 m g/m³</td>
<td>1. Improved west and Gaeke Method</td>
</tr>
<tr>
<td>Oxide of Nitrogen as NO₂</td>
<td>Annual Average* 24 hours**</td>
<td>80 m g/m³ / 120 m g/m³</td>
<td>2. Ultraviolet fluorescence</td>
</tr>
</tbody>
</table>

1. Jacob & Hochheiser Modified (Na-Aresnic) Method  
2. Gas phase Chemiliminescence

**Note:**

* Annual Arithmetic mean for the measurements taken in a year, following the guidelines for frequency of sampling laid down in clause 2.

** 24 hourly / 8 hourly values shall be met 92% of the time in a year. However, 8% of the time it may exceed but not on two consecutive days.

Unauthorised construction shall not be taken as a reference of nearest residential or commercial place for monitoring.

In case any residential or commercial or industrial place falls within 500 metres of any dust generating sources, the National Ambient Air Quality Standards notified under schedule VII shall be applicable.

### 2. Frequency of Sampling

- Air quality monitoring at a frequency of once in a fortnight at the dust generating sources given in clause 1 shall be carried out.
- As a result of monthly monitoring, if it is found that the value of the pollutant is less than 50% of the specified standards for three consecutive months, then the sampling frequency may be shifted to two days in a quarter year (3 months).
- In case, the value has exceeded the specified standards, the air quality sampling shall be done twice a week. If the results of four consecutive weeks indicate that the concentration of pollutants is within the specified standards, then fortnight monitoring may be reverted to.

### 3. Effluent Standards

The standards for effluent discharge into sewer or stream or land, are given below:

- **pH** - 5.5 to 9.0
- **Chemical Oxygen Demand (COD)** - 250 mg/l
Total Suspended Solids (TSS) - 100 mg/l 200 mg/l (Land for irrigation)  
Oil & Grease (O&G) - 10 mg/l

(Monitoring frequency of these parameters shall be once in a fortnight)

**Optional parameters** : All other parameters indicated in the general standards for discharge of environment pollutants under Schedule VI, shall be in addition to the effluent standards specified under clause 3.

(Monitoring frequency shall be once in a year for the optional parameters)

**4. Noise Level Standards**

6.00 AM – 10.00 PM  10.00 PM – 6.00 AM

Noise level Leq 75 dB(A)  Leq 70 dB(A)

(Monitoring frequency for noise level shall be once in fortnight)

Occupational exposure limit of noise specified by Director General of Mines Safety (DGMS) shall be complied with by the coal mines.