Duties & Obligation of Fly ash Brick Manufacturers under various laws on Environmental Governance in India

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FORMER ADDITIONAL DIRECTOR, CPCB
LEGISLATIONS ON ENVIRONMENTAL GOVERNANCE

• The Water (Prevention and Control of Pollution) Act, 1974

• The Air (Prevention and Control of Pollution) Act, 1981

• Environmental (Protection) Act, 1981
Under section 2(b),

“air pollution” means the presence in the atmosphere of any air pollutant;

Under section 2(a)

“air pollutant” means any solid, liquid or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment;
### NATIONAL AMBIENT AIR QUALITY STANDARDS

#### [SCHEDULE VII]
[See rule 3(3B)]

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Pollutant</th>
<th>Time Weighted Average</th>
<th>Concentration in Ambient Air</th>
<th>Methods of Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Industrial, Residential, Rural and Other Area</td>
<td>Ecologically Sensitive Area (notified by Central Government)</td>
</tr>
<tr>
<td>(1)</td>
<td>Sulphur Dioxide (SO₂), µg/m³</td>
<td>Annual*</td>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24 hours**</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>(2)</td>
<td>Nitrogen Dioxide (NO₂), µg/m³</td>
<td>Annual*</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24 hours**</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>(3)</td>
<td>Particulate Matter (size less than 10µm) or PM₁₀, µg/m³</td>
<td>Annual*</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24 hours**</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>(4)</td>
<td>Particulate Matter (size less than 2.5µm) or PM₂₅, µg/m³</td>
<td>Annual*</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24 hours**</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>

- Improved West and Gaekke
- Ultraviolet fluorescence
- Modified Jacob & Hochheiser (Na-Arsenite)
- Chemiluminescence
- Gravimetric
- TOEM
- Beta attenuation
- Gravimetric
- TOEM
- Beta attenuation
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Ozone (O₃) μg/m³</td>
<td>8 hours**</td>
<td>100</td>
<td>100</td>
<td>- UV photometric</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 hour**</td>
<td>180</td>
<td>180</td>
<td>- Chemiluminesence</td>
</tr>
<tr>
<td>6</td>
<td>Lead (Pb) μg/m³</td>
<td>Annual*</td>
<td>0.50</td>
<td>0.50</td>
<td>- Chemical Method</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24 hours**</td>
<td>1.0</td>
<td>1.0</td>
<td>- AAS/ICP method after sampling on EPM 2000 or equivalent filter paper</td>
</tr>
<tr>
<td>7</td>
<td>Carbon Monoxide (CO) ng/m³</td>
<td>8 hours**</td>
<td>02</td>
<td>02</td>
<td>- Non Dispersive Infra Red (NDIR) spectroscopy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 hour**</td>
<td>04</td>
<td>04</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Ammonia (NH₃) μg/m³</td>
<td>Annual*</td>
<td>100</td>
<td>100</td>
<td>- Indophenol blue method</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24 hours**</td>
<td>400</td>
<td>400</td>
<td>- Chemiluminesence</td>
</tr>
<tr>
<td>9</td>
<td>Benzene (C₆H₆) μg/m³</td>
<td>Annual*</td>
<td>05</td>
<td>05</td>
<td>- Gas chromatography based continuous analyzer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Annual*</td>
<td>04</td>
<td>04</td>
<td>- Adsorption and Desorption followed by GC analysis</td>
</tr>
<tr>
<td>10</td>
<td>Benzene (C₆H₆) pyrene (BaP) particulate phase only, ng/m³</td>
<td>Annual*</td>
<td>06</td>
<td>06</td>
<td>- Solvent extraction followed by HPLC/GC analysis</td>
</tr>
<tr>
<td>11</td>
<td>Arsenic (As), ng/m³</td>
<td>Annual*</td>
<td>20</td>
<td>20</td>
<td>- AAS/ICP method after sampling on EPM 2000 or equivalent filter paper</td>
</tr>
<tr>
<td>12</td>
<td>Nickel (Ni), ng/m³</td>
<td>Annual*</td>
<td>20</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

* Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

** 24 hourly or 08 hourly or 01 hourly monitored values, as applicable, shall be compiled with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

Note.— Whichever and wherever monitoring results on two consecutive days of monitoring exceed the limits specified above for the respective category, it shall be considered adequate reason to institute regular or continuous monitoring and further investigation.”

[F. No. Q-15017/43/2007-CPW]

RAINEESH DUBE, J. Secy.
SOURCES OF AIR POLLUTANT

NON VEHICULAR SOURCES

COMBUSTION SOURCES
- Point Source
  - Cast iron furnace
  - Fuel & oil combustion
  - Incinerator
  - Diesel generator
  - Kerosene generator
  - Petroleum refining
  - Power plant (natural gas)
  - Power plant (coal)
  - Brick & clay product
  - Coal combustion
- Non Point Source
  - LPG- Home
  - Wood- stove/restaurant
  - Kerosene stove
  - Agriculture waste burning
  - Coal stove (tandoor)
  - Cow dung
  - Bagasse
  - Plastic & leather waste burning
  - Solid waste burning
  - Refuse combustion

NON COMBUSTION SOURCES
- Point Source
  - Petroleum refining
  - Fertilizer plant packaging
  - Hot mix asphalt packaging
  - Glass manufacturing
  - Iron & steel production
  - Cast iron
  - Gray iron foundries
  - Lead oxide and pigment production
  - Earthen pot kiln
  - Cow dung
  - Bagasse
  - Plastic & leather waste burning
  - Solid waste burning
  - Refuse combustion
- Non Point Source
  - Paved road
  - Unpaved road
  - Soil dust
  - Fugitive dust
  - Asphalt paving operation
  - Construction work
  - Fly ash brick manufacturing
Under section 21(1),

Subject to the provisions of this section, no person shall, without the previous consent of the State Board, establish or operate any industrial plant in an air pollution control area:

Provided that a person operating any industrial plant in any air pollution control area immediately before the commencement of section 9 of the Air (Prevention and Control of Pollution) Amendment Act, 1987, for which no consent was necessary prior to such commencement, may continue to do so for a period of three months from such commencement or, if he has made an application for such consent within the said period of three months, till the disposal of such application.]
DECLARATION OF AIR POLLUTION CONTROL AREAS

Under Section 19 (1):

The State Government may, after consultation with the State Board, by notification in the Official Gazette declare in such manner as may be prescribed, any area or areas within the State as air pollution control area or areas for the purposes of this Act.
ARE THE FLYASH MANUFACTURER GENERATING AIR POLLUTANT (CRADLE TO GRAVE ASSESSMENT)

Factory Premises

Source of Fly ash (TPP) → Transportation → Unloading → Storage → Handling → Manufacturing → Bricks
OBSERVATION OF CSE

Design Survey:

• Number of Units with respect to state and production capacity.

• Assessment parameters

Total Units Surveyed: 48
States covered in the survey: Haryana, Rajasthan, Delhi and Uttar Pradesh.

No of units studied in each state:

<table>
<thead>
<tr>
<th>State</th>
<th>No of units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haryana</td>
<td>14</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>19</td>
</tr>
<tr>
<td>Delhi</td>
<td>10</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>05</td>
</tr>
</tbody>
</table>
PRODUCTION CAPACITY OF PLANTS

Scale of Operation

<table>
<thead>
<tr>
<th>Production capacity/day</th>
<th>Number of Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;10000</td>
<td>1</td>
</tr>
<tr>
<td>10000-20000</td>
<td>29</td>
</tr>
<tr>
<td>20000-35000</td>
<td>8</td>
</tr>
<tr>
<td>&gt;35000</td>
<td>4</td>
</tr>
</tbody>
</table>
PARAMETERS FOR ASSESSMENT

• Facility for fly ash storage
• Facility for lime Storage
• Boundary wall around the unit
• Road for vehicular movement
• Provision of water sprinkling
• Use of PPE’s
• Proximity to human settlement
• Housekeeping
• Transportation of fly ash
• Provision for Tyre washing
TRANSPORT

Unloading of flyash at Grey Brick Field, Ghaziabad

Hyva’s covered with tarpaulin used to transport bottom ash/pond ash.

Fugitive emissions from Bulker carrying fly ash
STORAGE - FLY ASH

Huge stock of fly ash in open at Deep kamal Fly ash, Greater Noida

Ultra Fine dry Fly ash from drying unit stored in open at Shree Balaji Bricks, Jhajjar

Open fly ash storage at Friends Builders, Najafgarh

Half hearted efforts to cover flyash at a unit in Nangli sakrawati
STORAGE- FLY ASH & LIME

Facility to store raw material under covered shed at KJS Concrete Pvt Ltd, Ghaziabad

Fly ash storage practice at GM concrete, Delhi

Pit designed for lime hydration at Khanak Flyash Bricks, Gurgaon

Open storage of lime at a cluster in Nangli Sakrawati, Delhi
Inappropriate height of Boundary wall at SR Bricks, Gurgaon

Flyash spillage on road due to absence of boundary wall at Laxmi Chand, Gurgaon

Percentage wise boundary conditions in NCR region
STATE-WISE SCENARIO FOR BOUNDARY WALL

Haryana
- Present: 57.1%
- Partial: 21.4%
- Absent: 21.4%

Uttar Pradesh
- Present: 68.4%
- Partial: 21.1%
- Absent: 10.5%

Delhi
- Present: 10.0%
- Absent: 90.0%

Rajasthan
- Present: 60.0%
- Absent: 40.0%
ROAD INFRASTRUCTURE FACILITY

Paved road and tree plantation on both sides of road at Ashtech, Dadri

Unpaved passage for trucks to the storage area at Shree Balaji Bricks, Jhajjar
WATER SPRINKLING PRACTICE

Status of sprinkling practice in NCR region

Ashtech, Dadri

Unit at Nangli Sakrawati
WATER SPRINKLING PRACTICE - STATEWISE

- **Haryana**
  - 57.1% Seen
  - 42.9% Not seen

- **Uttar Pradesh**
  - 63.2% Seen
  - 36.8% Not seen

- **Delhi**
  - 90.0% Seen
  - 10.0% Not seen

- **Rajasthan**
  - 40.0% Seen
  - 60.0% Not seen
USE OF PPE’s

No PPE’s used at a unit in Najafgarh

Use of gum boots by a worker at TSD Enterprise, Meerut

Use of gloves at Deep kamal fly ash, Greater Noida
PROXIMITY TO HUMAN SETTLEMENT

Proximity of flyash unit (Mayur Bricks) from residential area at Bhiwadi

Residential Area Next to Mayur bricks, Dadri
HOUSEKEEPING PRACTICE

Cluster at Nangla Sakrawati

Amit Ashtech, Dadri

Antriksh Enterprise, Greater Noida
Lung - the main entry point of air pollutants, and the target organ is the alveolus. (There are 300 million alveoli in human lungs)

- 10,000 – 15,000 litres air enters every day in an adult lung.

- Increase in the concentration of pollutants cause parallel increase in the toxic insult to the lungs.

- From the alveolus, pollutants travel via lymph or blood to different organs.
CAN COURT REMAIN SILENT OVER SUCH DAMAGE
MINIMUM REQUIREMENTS

• Provision of silos should be mandatory for units using dry ESP ash for making bricks.

• The units using bottom ash/pond ash should have adequate closed facility for storage of ash. The facility should be enclosed with walls from at least two sides up to the roof level. The other two sides should be covered with flexible curtain type material up to the height of dumper to allow movement of vehicles and prevent dust emissions.

• The transportation of any type of ash (fly ash/bottom ash/pond ash) should be carried in closed/covered vehicle only.

• Water sprinkling should be performed at regular intervals or automatic water sprinklers can be provided at fly ash storage area.

• All the units should have a boundary wall of adequate height all along its periphery and a layer of tree plantation along the boundary wall.
MINIMUM REQUIREMENTS

• The roads to be used by vehicles should be paved and should be cleaned regularly through mechanical methods.

• Provision for tyre washing of vehicles should be provided at the exit gate of units to avoid fly ash scattering at adjacent roads.

• Regulatory guidelines should be structured for this industry to monitor the storage and handling practices.
If you Salute your Duty, 
You no need to Salute Anybody, 
But 
If you pollute your Duty, You have to Salute Everybody 
-Kalam

For more Quotes:
Thank You