**Process Flow of Coal Stockyard at GMR Power Plant**

**1. Coal Arrival**

* **Sources**:
  + **Wagon (Train)**: Daily, **3 trains** arrive, totalling **90 trains per month**.
    - Each train has **approximately 84 wagons**.
    - Each wagon carries about **60 MT** of coal.
    - **Total Coal from Wagon per Train** = 84 wagons × 60 MT = **5,040 MT** per train.
    - **Total Monthly Coal from Wagon** = 90 trains × 5,040 MT = **453,600 MT**.
  + **Road Trucks**: Additional coal arrives via road trucks to meet operational needs.

**2. Coal Quality Check**

* **Coal GCV (Gross Calorific Value)**:
  + If coal arriving via wagon has a **GCV of 3,200 kcal/kg**, it is sent directly to the boiler.
  + Other coal types may be blended or stored based on quality and operational needs.

**3. Coal Processing Methods**

Three primary ways of handling the coal:

1. **Direct Feeding to Boiler**
   * GCV coal (3,200 kcal/kg) from wagons is directly fed into the boiler for combustion.
2. **Blending with Stock Coal or Biomass**
   * Imported coal is blended with stock coal or biomass to achieve the required fuel mix before being fed into the boiler.
3. **Stockpiling for Future Use**
   * Coal is stored in the stockyard for future use.

**4. Stockyard Management**

* **Stockyard Layout**:
  + **4 Piles (Yards)**.
  + Each pile has **4 Sub-Piles** (total of 16 sub-piles).
  + **Dimensions of Each Sub-Pile**:
    - **Width**: 200 m
    - **Height**: 9 m
  + **Capacity of Each Sub-Pile**: Approximately **20,000 MT**.
  + **Total Stockyard Capacity**:
    - 16 sub-piles × 20,000 MT = **320,000 MT**.
* **Stacking Process**:
  + Stacking is done using **2 Stackers** that distribute coal evenly across the sub-piles.
  + **Dust Control**:
    - **Water Spraying Systems** and **Dust Extraction Units** operate during stacking to minimize dust emissions.

**5. Crushing Process**

* **Crushing Stage**:
  + Before blending, all coal passes through a **crusher** to reduce it to small chunks of **8 mm**.
  + The crushed coal ensures better combustion efficiency and improved blending.

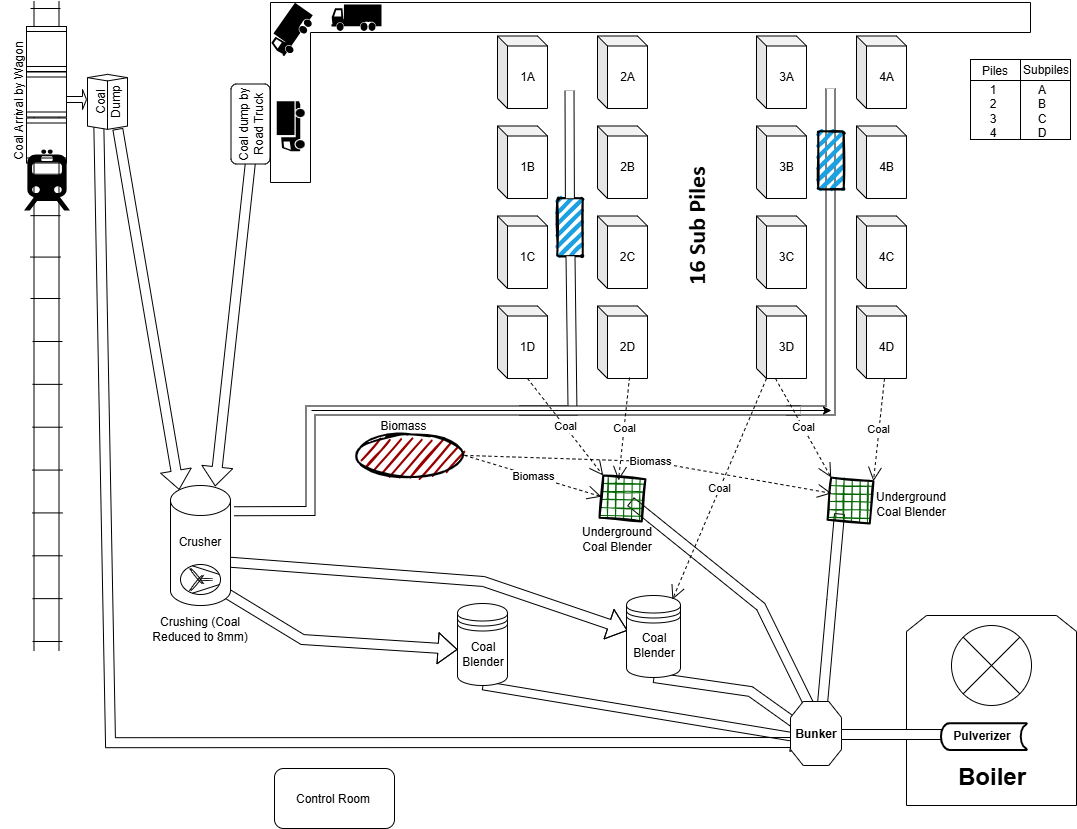
**6. Reclaiming and Blending**

* **Reclaiming**:
  + Coal is reclaimed from the sub-piles using conveyors.
* **Crushing**:
  + Reclaimed coal is sent to the **crusher** to achieve the desired size of **8 mm**.
* **Blending**:
  + Crushed coal is blended with stock coal or biomass to achieve the required quality before feeding into the boiler.

**7. Feeding to Boiler**

* The processed coal (either direct-fed, blended, or reclaimed) is transported via **conveyor belts** to the boiler for combustion.

**Coal Stockyard Layout**

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