Report on Surface Miner

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Introduction:

With significant progress on regulatory reform and growing economic growth, the Indian Power Sector is now ready to begin. India's response to the remaining challenges of the restructuring process and the emerging fuel shortfall will determine what happens in the years to come. India has set itself the goal of setting a target for double electricity consumption per capita by 2011. India's coal demand is expected to grow by 7% annually over the next decade. Much of this growth in demand will come from electricity generation, which currently accounts for about 80% of total coal consumption. In a world that relies heavily on coal, the pressures of this growing demand are becoming apparent. Over the past decade, coal exports have grown steadily at an annual rate of 12%. The expected coal demand for the last year of the XIth Five Year Plan is only 650 MT. To meet this challenge, technological advancement, without opening new mines, is an hour's need. Surface Miner technology has great potential to improve coal production in existing and new mines

A. A common definition of foreign miners

Basically three types of Surface Miner are available on the market today. A typical view of each Surface Miner machine is provided below:
Equipment with front cutting drums

Fig. 2.1: Machines with front boom cutting drum

Machines with middle drum configuration. Schematic drawing of Machine with middledrum configuration is given below:

2.2.1 Clean usable areas.

Clean and stable environments are another benefit of more mining technology. Several clients provide us with

additional access points to their mining or construction activities. This simple service allows for safe transport and prevents damage to other materials used in everyday mining and construction situations.

*B. **Use of land miners***

Global miners can be used to acquire the following end products:

2.2.1 Requirements.

Yes the most common product is the cutting of selected material, crushed and loaded to be processed in a single process. By using the above mining process, you can achieve higher production at lower cost and less machinery. And under this concept, you can dig for safety without environmental problems

2.1 Use of Surface Miners

Surface Miners can be used in non-continuous and continuous mining projects. The most common type of application is probably a system that uses trucks to transport of the material. Direct combinations of Surface Miners with conveyor systems are also possible, as well as mixed systems where trucks are used in short cycles to transport goods to a slow-loading loading station for further transportation.

The following sections describe in detail some of the example applications

2.2 WORKING PRINCIPLE OF SURFACE MINER (2100/2200 SM OF WIRTGEN) :

The top miner is provided with a drum-shaped cutter or grinding head fitted with a series of tungsten carbide cables with adjustable tips extending to the full width of the machine in the form of a helix that facilitates the cutting of material cut to the center of the machine. . The cutting drum is located between the two sets of screws and is mounted in the center to allow the machine to assemble. The grinding drum is driven by a straight-line steering system using V-belting directly with a mechanical clutch on the side of the flight engine of the diesel engine. The grinding machine holds the handles of the cutting tools burned on the body of the drum and the cutting tools are centered on these handles. The grinding drum works upside down and cuts a piece of furniture by a piece from the bottom of the bench. The cut material is picked up by the tool and the aircraft system in the center of the main conveyor belt which during transport further reduces the size of the object. The primary belt conveyor furthers the vital transport to the second, internal conveyor

4.1 SafetyAdvantages of Surface Miner over other conventional equipment Safety:

There is no fire hazard in the coal seam as it does not leave behind any loose material that can heat up automatically. The road becomes very smooth after each cut and thus facilitates the movement of tippers and other tools. The safety features of the top miner are as follows: -

1. Five numbers. of the kill switch engines, one on the control panel, one on top of the search units.

2. Scraper door border change- If the scraper door is raised, then the advance drive, drum drive andconveyor drive will be disconnected.
3. Warning plate side of the grinding plate: - When the side plate is raised, the red warning light will start flashing to alert the operator.
4. Moving warning horn.

5. The discharge function of the discharge machine is terminated when the ventilation function begins.

Conveyor slewing can be terminated if you are marching / moving long distances.

6. Four warning horn switches, one on the control panel, one on top of the front crawlerunits.

The Jharia Coalfield in Jharkhand is a warehouse dedicated to domestic high-grade coking coal, consisting of 23 large underground mines and 9 large open pit mines. Mining activities in these coal fields began in 1894 and actually expanded by 1925. In 1916, when the first fire was discovered, a coal-seam fire in the Jharia coalfield was being tracked. Currently, more than 70 coal-seam fires have been reported from this area. Such fires cause excessive environmental and economic costs and burn non-renewable and important energy sources. The fire contains significant toxic gases, including carbon monoxide and particulate matter such as carbon dioxide, methane, nitrogen oxides and sulfur. Currently, these reasons are not optimal for underground explosions and land subsidence, and they also contribute to cancer and respiratory illness (Finkelman2004). Atmospheric effects consist of nearby temperature rises and contribute to global warming through methane, CO^2, and radiative forcing (Chikkalur, Sagar and Sankar2009). The water table is continuously declining as the aquifer is obstructed by mining and its yield is significantly reduced. The Jharia Coalfield is a large coal-fired power plant located in eastern India in Jharkhand, Jharkhand. The Jharia coalfield fire is defined between latitudes 23 ° 38'N and 23 ° 52'N, longitudes 86 ° 08'E and 86 ° 29'E, spans 38 km east-west and 19 km north-south, and covers an area of 450 square kilometers.

The Jharia Coalfield is part of the East-West Gondwana Basin in the Damodar Valley in northeastern India. Underground fires have a great impact on soil, water, plants, air, etc., so it is necessary to prevent these underground fires in order to overcome these problems. The gases released by these fires cause smog, acid rain, and global warming, which produces greenhouse gases. The author has some recommendations for resolving the issue. Sustainable mining is the most environmentally friendly option. The fire triangle contains heat, gas, and air. There are miles of benefit in reducing all of the above factors to reduce underground fires. BCCL dates fire obligations back to ancient paintings and pre-nationalized mining. It is ironic that some of the measures to prevent and control coal-seam fires have been promoted and implemented in India. These include penstocks for penstocks in hollow mines. Blind flushing with fly ash and mortar. Blow the inert gas into the cavity with nitrogen. Isolate trenches, mortar barriers, and areas affected by digging backfills. Surface sealing and stamping. Still, their implementation is very slow and there are the top 10 open burns seen in 2008 in the available data (Raju et al. 2016). Meanwhile, key authority companies, Coal India, the world's leading coal agency, and its subsidiaries and subcontractors are in the process of contracting to extract coal faster than the spread of coal. With the help of 2002, BCCL filled an apparently burning mine with 50 million tonnes of paper sand. Most experts (and BCCL officials themselves) agree that less than 20% of this sand was actually taken to the affected mines and buried in pits. That's because the sand damming contract was given to the same fraudster company called the Mafia, who managed coal hauling, unions, and more.

False claims, fraudulent certification by DGMS, and permanent production with the support of BCCL suggested that about 80 cents of sand was recorded and paid on paper, but never consumed. This "sand stripping" brought tens of millions of dollars to the coal mafia and was widely reported by newspapers and reporters (see Daniel and Williams 2013). As a result, coal mafia and BCCL officials have openly cooperated and cooperated. The Mafia is sometimes referred to as another BCCL "branch" because it was mobilized not only to regulate fire and sand, but also to mobilize and staff the labor movement.

Paints for government agencies in debt and distress below. By the early 1990s, , these fires were estimated to have burned 42 million tonnes of coking coal. Still, about 7,000 million tonnes of coal reserves are under exceptional surface dwellings, and another about 1.8 billion tonnes are involved in the fire. Open pit mining is offered as an answer to "controlling and excavating fire" and coal, but paradoxically, this level of fire protection sets fire to previously unaffected areas. Another solution that was recognized as much as possible in a positive situation was to dig a non-combustible trench quickly. According to one journalist, in 2009 the exercise was narrowed down to two companies involved in illegal mining and "had a vested interest in a chimney jumping over a moat." The excavation of the trench was deliberately gradually unstable, the solution became awkward again, and the fire jumped over the barrier while the oxygen unfolded into the previously unexposed seams.

Government-used methods, BCCL underground to open pit conversion, nitrogen purging, ventilation blocking, surface-to-underground crack identification and filling, water spraying, drilling fire drilling cleanup.

Use advanced technologies such as drones to scan and identify areas of fire risk and use AI automated guided vehicles to rescue and mitigate fires.

Modern technology is advancing drone and sensor technology to help prevent unmanned aerial vehicle-like fires. From these, you can see real-time fire monitoring, access places that people can't go to, and operate well. It uses drone technology to spray larger water and remove lit coal rocks. The drone helps you plan and determine the type and amount of resources to send to the wildfire site within minutes. Some drones are also equipped with infrared heat sensors, which allow first responders to find heat signs from people or fire sources to indicate where the fire is most likely to spread.

Causes and Environmental Impacts A. Atmospheric Impacts: The National Air Quality Standards (NAAQS) has established the (CPCB) Central Pollution Control Committee (India) to assess air quality. Increasing the concentration of pollutants from the viewpoint of NAAQS (National Ambient Air Quality Standards) is harmful to local residents, animals and plants. Contaminated air can lead to a variety of illnesses such as asthma, bronchitis, and respiratory distress.

B. Impacts on water and soil: The impact of mining activity on water and soil has been reported for several years. When mine water is used for irrigation purposes, toxic heavy metals from it can accumulate in the soil and enter the food chain, causing serious health hazards and threatening the long-term sustainability of the local ecosystem. There is sex.

Cause of fire:

Natural factor

Oxygen adsorption due to exothermic reaction raises the temperature of the coal accumulated in the mine, and if this temperature exceeds 80 ° C, it will lead to ignition and

incineration of the mine. Coal (Sindhuja, 2015). Then there are other factors that can be transmitted to the culm bank, such as thunderstorms, thunderstorms, shrub fires, forest peat fires, and surface fires. There are other reasons, such as the spread of fire due to strong winds.

Anthropogenic Factors

A number of anthropogenic factors are involved in this. To name a few, they are mechanical cutting of mines, sparks from welding, ruptures that easily ignite with coal, electrical work that produces sparks to make coal flammable, mining accidents, and cigarette butts. Possible mining-related activities such as dumping

Near the mine, ignition of reactive gases such as methane and hydrogen from the mine causes a fire during the reaction, burning debris near the mine and completely extinguishing the fire. If not, it will cause a fire and will act as a fertilizer, fire reactant on oiled rags, trees, hay or straw banks. The Mafia has permeated all mainstream political parties in Jarkand, and the ability to exchange policies through bribes and affairs by appointing the sons, spouses, and children of politicians and bureaucrats to their institutions is political. It gives legitimacy and influence. The Chimney Mafia no longer hesitates to abolish swing trading members from left-wing parties and operates its own partnership.

This means that the important and historically important position of labor, not employment protection, is at stake. This mafia eats a stove. Haas facilitates the application of gold panning licenses or mining leases and the avoidance of criminal techniques for law. Chimneys increase illegality, illegality spreads fire A vicious cycle of crime and destruction that damages the health and livelihoods of many employees while destroying the environment. Valuable governments are currently advocating large-scale peasants, but lack a coherent criminal plan for rehabilitation and resettlement. From the perspective of as a whole, it was concluded that the Jharia coalfield fire could be used as syngas throughout the process of coal gasification. Gasification of coal helps to consume the coal seam and convert it into useful methane CH4 gas. This will benefit our economy and meet our thermal energy needs.

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