GOVERNMENT OF KHYBER PAKHTUNKHWA
CLIMATE CHANGE, FORESTRY, ENVIRONMENT
AND WILDLIFE DEPARTMENT
(SECTION ENVIRONMENT)

NOTIFICATION

Peshawar Dated the 25/07/2025

No. SO(ENVT)/CCFE&WD/1-8/EPC-2025: In exercise of powers conferred under Clause xxii of Section 7 of the Khyber Pakhtunkhwa Environmental Protection Act, 2014, (Khyber Pakhtunkhwa Act No. XXX of 2022), the Khyber Pakhtunkhwa Environmental Protection Council (EPC) in its 3rd Meeting held on 13.05.2025 has been pleased to approve the following guidelines for General Environmental Approval (GEA);

GUIDELINES FOR MARBLE UNITS

Contents

1. Introduction

Marble industry is important medium size industrial sector.Marble factories process raw marble to produce finished goods such as tiles, tableware and decoration pieces.

Scope of the Guidelines

These guidelines are applicable to the future developments of marble units in the province of KP having a total cost of less than Rupees ten million.

These guide lines are not applicable to mining of marble.

How to use these Guidelines

The project proponent is to fill

in an environmental assessment form.The following steps are to be taken in this regard:

Step1:Provide information on project [use **Section I**]

Step 2:Determine Applicability (*Are you sure that IEE or EIA is not required?*) [use **Section II**], Anad requires GEA

Step3:Describe the physical,biological and social environment [use **Section III**]

Step 4:Assess potential impacts and applicable mitigation measures [use **Section IV**]

Step5: Provide under taking to the KP EPA on mitigation measures and compliance [use **Section V**]

Completed form is to be submitted to the NWFP Environmental Protection Agency for evaluation. KP EPA may request for additional information nor decide to undertake visit to the proposed project site in order to assess the environmental impact of the proposed project.

Glossary

Act means the KP Environmental Protection Act, 2014.

Coagulation means the use of chemicals (the coagulants) to make suspended solids to gather or group together to form larger masses or flocs, which can settle to the bottom

Dust are fine powdery material such as dry earth or pollen that can be blown about in the air

Environment means (a) air, water and land;(b)all layers of the atmosphere;(c) all organic and inorganic matter and living organisms; (d) the ecosystem and ecological relationships; (e) buildings, structures,roads,facilities and works;(f) all social and economic conditions affecting community life; and (g) the inter-relationships between any of the factors in sub-clause (a) to (f).

Environmental Assessment a technique and a process by which information about the environmental effects of a project is collected, both by the developer and from other sources, and taken into account by the planning authority informing their judgments on whether the development should go ahead.

Filtration means subjecting an effluent to pass through a membrane or a layer of sand or gravel to separate the suspended particles

Impact on Environment means any effect on land, water, air or any other component of the environment, including any effect on the social and cultural environment or on heritage resources.

Liquid Effluent is the used water coming out of the stone crushing unit

Lime is the common name for oxides of calcium

Mitigation Measure means a measure for the control ,reductionorelimination of an adverse impact of a development on the environment, including a restorative measure.

Noise is defined a sun wanted sound; sound that is loud, unpleasant or unexpected.

Regulations means the Khyber Pakhtunkhwa Environmental Assessment Rules, 2021.

Suspended Solids are solid particles suspended in water that can be removed by filtration or settlement

Sedimentation means settling of particles by gravity

2. Project Profile

Project Description

Marble industry is an important industrial sector in the country engaged in producing finished goods such astiles, tableware and decoration pieces The marble crushing units can be seen in the vicinity of almost all major cities and towns.

Marble processing is a simple process. Raw marble block, weighing several tones, is transported to the factory by road through truck or tractor trolleys. It is unloaded in the storage arc using fork- lift or through pulleys. The marble block is then cut in to smaller pieces or slabs on cutting machine. Both dry and wet cutting machines are used. Using various smaller machines and manual process the marble is finally brought to the desired shape depend on the product. Polishing is the last step in which various polishing buffs are used. Smaller pieces and waste from the process is crushed to make marble chip used in floor finishing. Marble dust is also marketed for use as abrasive.

Environmental Aspects

The major environmental aspects for marble crushing units are discussed for each of the process steps.

Raw and Finished Material Transportation

This activity can bring about significant increase in the noise levels in the vicinity of the marble unit due to the heavy transport deployed to bring the raw material to the site. The loaded trucks are also

slow moving vehicles and if the access roads are not wide enough they can cause over all traffic slow downs and congestion during peak hours.
Further, the transport of raw and finished marble in bulk through open trucks also causes the emission of dusts into the air.

Cutting and Processing

The main aspects of these activities are generation of noise, dust and liquid effluent. Excessive use of fresh water in wet processing is an other environmental aspect. These are discussed below:

- Dry cutting of marble results in generation of marble dust.
  Depending on the size of the operation and equipment the dust can spread locally and can affect the health of the community apart from being a general nuisance.
- Wet cutting and polishing uses water.The water containing marble dust, if discharged to the environment pollutes watercourses.
- In areas where water resources are limited, marble factories are competing with the local communities for the available water. Conservation, and re-use of water in these areas is critical.
- Dust emission, apart from being an environmental issue is also a serious occupational health hazard. The workers operating various machines and engaged in polishing of marble Pieces are exposed to unacceptable levels of dust.
- Marble cutting operation can be major source of noise pollution. Excessive levels of noise can cause nuisance to the surrounding community and can also be an occupational hazard.

Mitigation Options

Traffic Management

Location of plant has to be such that ingress of heavy vehicles does not block the traffic. Evening and late night operation is to be avoided if passage is through residential areas.

Dust Containment

- In general enclosures provided for dust control in equipment and conveyors are inadequate. Dust containment enclosures are required for the purpose of containing the emissions within an enclosure and to prevent wind currents, which can spread the dust to larger areas. Such enclosures are recommended for all areas where dry processing takes place.
- The enclosures should be, complete from all four sides and roof. There should not be open windows and other openings. The gaps should be sealed using gaskets or wool type packing etc.

Liquid Effluent Treatment

- Volume and strength reduction of the effluent is to be achieved by preventing mixing of waters from washing activities and processing activities

- Liquid effluent is to be treated by sedimentation process meaning subjecting the effluent to flow through settling tanks
- Effluent is to be treated by coagulation that is adding any coagulant to the settling tanks. Nevertheless, this treatment is expensive as compared to the sedimentation process yet it is more efficient.
- Effluent is to be treated by coagulation and filtration. Treated effluent can be reused but the treatment process is expensive comparatively.

Noise

- It is the responsibility of the factory owners to ensure that the operation of the marble factory does not cause nuisance for the community. Proper siting can eliminate many of the noise related issues.
  - If the factory is located in industrial area, it is less likely that sensitive receptors would be present in the surroundings.
  - If the proposed site of the factory is not in an industrial area, keeping a distance of at least 500mfromcommunitiesis desirable.
  - If the required distance cannot be maintained, or the land around the proposed site is designated for communities or other sensitive receptors, noise walls may required to prevent noise from the factory disturbing the existing or future communities.
- The recommended density of the noise walls is 10 kilogram per square meter. The height of the wall should be such that a line drawn from the noise source to the wall and extend in the direction of the receptor should pass at least 2 meters above the receptor.

Occupational Safety

- Personal protective equipment should be provided to the workers. It is observed that often there is reluctance on the part of the workers to use the equipment. Inconvenience is generally cited as the main reason. All such complaints should be investigated and attempts should be made to identify the reason and rectify it. However, providing awareness about the long-term health effects of the dust and noise is very important. Worker who are aware of the safety and health hazards and are motivated will modify his their work habits and use PPE even if creates some inconvenience.

Environmental Assessment Checklist

Section I: Project Description

File No_____(To be filled by EPA)

Date_____

General Information

1. Project Name or Title_____
2. Project Proponent (Department or Organization)_____
3. Address_____
4. Telephone_____
5. Fax _____
6. E-mail_____
7. Representative of the Proponent_____
8. Designation_____
9. Name of the person who conducted this assessment_____
10. Designation_____
11. Qualification _____

Project Information

12. Project Location & GPS Coordinates _____
13. Cost of the Project_____
14. Area of the proposed land for the plant
    - Total_____m^2
    - Proposed covered_____m^2
    - Open space_____m^2
15. Brief description of the plant_____

Please attach a plot plan of the proposed project site showing the location of the key structures, access, utilities, units, etc.

16. List key equipment of the plant_____
_____
_____
_____
17. Design production capacity of the unit_____
18. Number and qualification of required staff to run the unit?_____
_____
19. What will be the expected water requirement for the unit?_____ m^3/d
20. What is the proposed source of water?_____
21. Where will the waste water from the unit bed is posed?_____
22. Describe the type of material that will be discharged with the waste water?_____
_____
_____
23. Please describe any treatment system for the
24. Waste water planned?_____
_____
25. Type and quantity of raw material for the unit?_____
_____
26. What is the expected source of the raw material?_____
27. What are the expected operating hours? _____
28. Is night shift planned?_____
29. How many vehicles carrying raw material and finished product are likely to enter or leave the unit daily?_____

Construction

30. Who owns the proposed land for the project?_____
31. What is the present use of the land?_____
32. Are there any squatter settlements on the land?_____
33. If yes, please specify
    Number of settlements_____
    Will any compensation be paid to them?_____

32. Are there any structures on the proposed site now? ☐ Yes ☐
33. If yes,will any structure be demolished? ☐ Yes ☐
34. If yes,where the demolition waste will be disposed?_____
35. Are there any tree son the proposed site? ☐ Yes ☐
36. Willany tree be removed? ☐ Yes ☐

37. Period of construction(start and end dates)_
38. What major construction equipment(dozer,grader,crane,etc.)will be used?
_____

39. Is construction work during the night planned? ☞ Yes ☞ No

Section II: Screening

Is the proposed project located in an ecologically sensitive area?

☞ Yes

☞ No

Is the total cost of the proposed project Rupees 10 million or more?

☞ Yes ☞ No

If the answer to any of the above questions is yes,then the project would require an initial environmental examination or an environment impact assessment.
Refer to the Khyber Pakhtunkhwa Environmental Assessment Rules, 2021 for appropriate category.

Section III: Environmental Profile

1. Describe the terrain of the project area:
   - ☞ Flat or Level(Slope<3%)
   - ☞ ☞ Level to moderately steep (Slope 3%-30%)
   - ☞ ☞ Moderately steep to mountainous(Slope>30%)
2. Are there signs of soil erosion or landslide anywhere within 500 m of the proposed site?

   ☞ ☞ Yes

   ☞ ☞ No

   If yes, please describe (where, nature)_____
3. Is there any surface water body(river,canal,stream,lake,wetland)within 1,000 m of the proposed site?

   ☞ ☞ Yes

   ☞ ☞ No

If yes, describe each water body:

Name (including type,ie,river,canal or stream)	**Dimensions**	**Status and Uses**(Is it polluted? Is domestic or other wastewater discharged to it? What are its uses, eg, agriculture, domestic, industrial, washing, fishery

4. Is there any ground water well on the proposed site or within 500 m of the proposed site?

☞ ☞ Yes

☞ ☞ No

If yes, describe each well:

Type(Dugwell, tube well, handpump	**Location**(Village, road,mohalla,etc. anddistancefrom thesite)	**Depth and Yield**	**Uses**(Drinking, agriculture,domestic, industrial,washing, livestock)

5. Based on the interview of the surrounding population or a wildlife expert, is any form of wildlife found on, or around the proposed site of the project?

☞ Yes ☞ No

If yes, please describe_____

_____

Person Interviewed_____

6. Are there any existing trees or vegetation on the proposed site?

☞ Yes ☞ No

If yes,how many?_____

7. Are there any reserved forest or protected area within 1,000 m of the proposed site?

☞ Yes ☞ No

If yes, please describe?_____

8. Please provide the traffic count for all main roads adjacent to the proposed site or roads that will provide access to the site.The count should be based on data collected, for both directions, on at least three typical working days. Use the following format:

Road_____Count Location _____

	6:00am-9:00am	9:00am-12:00noon	12:00noon-3:00pm	3:00pm-6:00pm	6:00pm-9:00pm
Large vehicles (trucks,buses, tractortrolleys, Minibuses)					
Medium sized vehicles(Suzuki pickups, cars, jeeps, taxis)					
Small vehicles (Rickshaws, motorcycles, scooters)					
Slow vehicles (animal-driven carts, tongas)					
Others					

(*Please add additional sheets for every road*)

9. What is the present land use in the vicinity(roughlyaradiusof500m)ofthe proposed site?

	Residential (Thick, Moderate, Sparse)	**Commercial** (Office, Shops, Fuel Stations)	**Open Land** (Parks, Farmlands, unutilized plots,barren land	**Sensitive Receptors andSitesof Cultural Importance**	**Other**
Description					

(*Please attach a map of the proposed project site and indicate roughly the area that*

you have considered for this evaluation)

10. For any agricultural farmland on the proposed site and a radius of 500m around it, provide the following information:

Main crop(s) and average yield_____

Source of irrigation water _____

Area affected by salinity or water logging_____

11. Please describe all the sensitive receptors within 500 m of the proposed site:

Type(schools, colleges, hospitals,and clinics)	**Name**	**Size**(Number of studentsor numberofbeds)	**Location** (Village,road, mohalla,etc.)	**Distancefrom Site**

12. Roughly, how many houses are within a radius of 500 m of the proposed site?

_____

13. What proportion of the houses in the area are *pukka ,semi-pukka, and* kutcha?_____

14. How are the general hygienic conditions of the project area?

☞ ☞ Generally clean

☞ ☞ Fair

☞ ☞ Poor

15. Is there any bad odor in the project area?

☞ ☞ Yes

☞ ☞ No

What is the source of the odor?_____

16. What are the main sources of income of the surrounding community?_____

_____

17. Is there any site of cultural importance(graveyard,shrine,mosque, archeological site) within 1,000 m of the proposed scheme?

☞ ☞ Yes

☞ ☞ No

If yes, please describe?_____

18. What other main sources of pollution exist within a radius of 500 m of the proposed site:

Name of the Source	**Type of Pollution** (Noise,airwater)	**Location** (Village,road, mohalla,etc.)	**Distance from Site**

Section IV: Impact Assessment

Potential Negative EnvironmentalImpacts	*Tick, if relevant*	*Mitigation Measures*	*Tick, if proposed*	*Monitoring*
Siting		Factory will not be located in an industrial zone Factory will not be located within 500m of any community, educational institution or health facility		
Traffic		Plant is located such that ingress of heavy Vehicles does not block the traffic		
Dust		Dust contain menten closures will be provided		
Noise		Noise w all will be built		
Wastewater		Evening and late night operation of material and Product trucks will be avoided Volume and strength reduction of the effluent is To be achieved by preventing mixing of waters From washing activities and processing activities Liquid effluent is to be treated by sedimentation Process meaning subjecting the effluent to flow Through settling tanks Effluent is to be treated by coagulation that is Adding any coagulant to the settling tanks Effluent is to be treated by coagulation and filtration		
Occupational safety		Workers will be provided with protective equipments		

Section V: Undertaking

I,_____(*full name and address*)as proponent for _____(*name, description and location of project*) do hereby solemnly affirm and declare:

1. The information on the proposed project and the environment provided in Forms I, II and III are correct to the best of my knowledge
2. I fully understand and accept the conditions contained in the Guide lines for _____ (*name, number and version of the guidelines*)
3. I undertake to design, construct and operate the project strictly in accordance with the project described in FormI, submitted with this undertaking.
4. I undertake to implement all mitigate on me asures and undertake monitoring stated in Form IV, submitted with this undertaking.

Date_____ Signature _____

Name _____

Designation _____

(with official stamp/seal)

Witnesses:

	Signature	Name	Address
1	_____	_____	_____
2	_____	_____	_____

-sd-
Secretary to Govt. of Khyber Pakhtunkhwa
Climate Change, Forestry, Environment & Wildlife Department

No. SO(ENVT)/CCFE&WD/1-8/EPC-2025:

Copy for information to;

1. All members of Environmental Protection Council (EPC) Khyber Pakhtunkhwa
2. PS to Secretary Climate Change, Forestry, Environment & Wildlife Department, Khyber Pakhtunkhwa

20/8/25

Muhammad Ishaq
Section Officer (Environment)

NOTIFICATION

Peshawar Dated the 25/07/2025

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GUIDELINES FOR CRUSHING UNITS OF LIMESTONE

1. Project Description:

Stone crushing industry is an important industrial sector in the country. It is used in various activities. These stone crushing units can be seen in the vicinity of almost all major cities. The mined stone is transported to the crushers it by road through tractor trolley so pay-loaders. The pay-loaders unload the mined stones into storage hoppers located at elevated levels of the crushers sites. These stones are crushed in a Crusher and sent to a screen. The over size from these screen is sent for further size reduction in secondary Crushers and so on. From these Crushers, the crushed stones are sent for screening. In the screen, products of various sizes get separated which are stored in heaps. Movement of stones from crusher to screen to product piles is done through belt conveyors. The product is generally stored in open areas/ silos.

1.1. Environmental Aspects

The major environmental aspects for marble and stone crushing units are discussed for each of the process steps.

- **Raw and Finished Material Transportation**

  This activity can bring about significant increase in the noise levels in the vicinity of the crushing unit due to the heavy transport deployed to bring the raw material to the site. The loaded trucks are also slow moving vehicles and if the access roads are not wide enough they can cause over all traffics low downs and congestion during peak hours.

  Further the transport of crushed stones and fines in bulk through open trucks also causes the emission of dusts into the air and spattering of fine stones on vehicles and other users of the roads taken by the product truck.

- **Crushing and Screening**

  The main aspects of these activities are generation of noise and dust. These are:

  - Emissions during unloading of mined stones at crusher site.
  - Emissions during Crushing Operations
  - Emissions during Material Movement and Transfer
  - Emissions during Operation from vibration

  Conveyors and crushers both generate mechanical sound as well as dust. Water used for cooling purposes will also carry large load of suspended solids.

- **Product Storage**

  Products of screening are usually left in form of piles of crushed products in the open. There are:

  - Emissions during loading
  - Emission from the stock piles.

1.2. Mitigation Options

- **Raw and Finished Material Transportation**

- Location of plant has to be such that ingress of heavy vehicles does not block the traffic.
- Evening and late night operation is a voided if passage is through residential areas.
- Pay load area is covered by tarpaulins when transporting crush to prevent fallout of fines and emissions of dust.

➢ **Crushing and Screening**

Dust and Noise Containment - In general enclosures provided for dust control in equipment and conveyors are in adequate. Dust containment enclosures are required for the purpose of containing the emissions within an enclosure and to prevent wind currents, which can spread the dust to larger areas. Such enclosures are recommended for following:

- Crusher discharge area.
- Product storage hoppers(optional)
- Belt Conveyors(optional)

The enclosures should be, complete from all four sides and roof. There should not be open Windows / openings etc. The gaps should be sealed using gas kets or wool type packing etc.

Dust Suppression - The Dust Suppression System should comprise of a covered water storage tank,a pump,an on line water filter, connecting GIpipes ,spray nozzles each fitted with flow regulating valves.There commended locations where sprays could be located are:

- Spray on the stones while Unloading from the truck/dumper.
- Spray at the crusher inlet chute/hoppers
- Spray at the Transfer points from one belt conveyor to another
- Spray at Crusher discharge points

➢ **Liquid Effluent Treatment**

- Volume and strength reduction of the effluent is to be achieved by preventing mixing of waters from washing activities and processing activities
- Liquid effluent is to be treated by sediment at ion process meaning subjecting the effluent to flow through settling tanks
- Effluent is to be treated by coagulation that is adding any coagulant to the settling tanks. Nevertheless, this treatment is expensive as compared to the sedimentation process yet it is more efficient.

  Effluent is to be treated by coagulation and filtration. Treated effluent can be reused but the treatment process is expensive comparatively.

-sd-
Secretary to Govt. of Khyber Pakhtunkhwa
Climate Change, Forestry, Environment & Wildlife
Department

No. SO(ENVT)/CCFE&WD/1-8/EPC-2025:

Copy for information to;

1. All members of Environmental Protection Council (EPC) Khyber Pakhtunkhwa
2. PS to Secretary Climate Change, Forestry, Environment & Wildlife Department, Khyber Pakhtunkhwa

20/8/25

Muhammad Ishaq
Section Officer (Environment)

GOVERNMENT OF KHYBER PAKHTUNKHWA
CLIMATE CHANGE, FORESTRY, ENVIRONMENT
AND WILDLIFE DEPARTMENT
(SECTION ENVIRONMENT)

NOTIFICATION

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GUIDELINES FOR BRICK KILNS

Contents

1. Introduction

More than 300 brick kilns are operating in and around Peshawar. Old rubber tyres, low-quality coal, wood and used oil are used in these kilns as fuel. Consumption of these fuels, combined with inefficient combustion producing harmful effects. As per government policy the existing brick kilns will be converted to zigzag technology produces a large quantity of hazardous gaseous that is injurious to the health of the community living in the surroundings the kilns as well as the workers of the kiln.

Scope of Guidelines

These guidelines are applicable to the future developments of brick kiln units in the province of KP. It covers both the permanent and temporary brickkilns. The scope of these guidelines does not cover the social issue related to the use of bonded labor in the brick kilns.

How to use these Guidelines

The project proponent is obliged to use these guide lines. The project proponent has to fill in an environmental impact assessment form. The following steps are to be taken in this regard:

Step1:Provide information on project [use **Section I**]

Step 2:Determine Applicability (*Are you sure that IEE or EIA is not required?; And GEA.*) [use **Section II**]

Step3:Describe the physical, biological and social environment [use **Section III**]

Step 4:Assess potential impacts and applicable mitigation measures [use **Section IV**]

Step5:Provide under taking to the EPA on mitigation measures and compliance [use **Section V**]

Completed form is to be submitted to the NWFP Environmental Protection Agency for evaluation.KP EPA may request for additional information nor decide to undertake visit to the proposed project site in order to assess the environmental impact of the proposed project.

Glossary

Act means the KP Environmental Protection Act, 2014.

Contamination introduction of impurities in the environment

Dust are fine powdery material such as dry earth or pollen that can be blown about in the air

Deforestation removal of trees

Environment means (a) air, water and land;(b)all layers of the atmosphere;(c) all

organic and inorganic matter and living organisms; (d) the ecosystem and ecological relationships; (e) buildings, structures, roads, facilities and works;(f) all social and economic conditions affecting community life; and (g) the inter-relationships between any of the factors in sub-clause (a) to (f).

Environmental Assessment technique and a process by which information about the environmental effects of a project is collected, both by the developer and from other sources, and taken into account by the planning authority in forming their judgments on whether the development should go ahead.

Flue Gas smoke or gas coming out of stack or chimney

Impact on Environment means any effect on land, water, air or any other component of the environment and including any effect on the social and cultural environment or on heritage resources.

Mitigation Measure means a measure for the control, reduction or elimination of an adverse impact of a development

On the environment, including a restorative measure.

Pollution the presence in the environment or the introduction into it, of substances that have harmful or unpleasant effects

Particulate Matters any particles of dispersed matter, solid, liquid, that are larger than individual molecules

Regulations means the Khyber Pakhtunkhwa Environmental Assessment Rules, 2021. The subject case falls in schedule "IV".

Soil Erosion physical removal of soil, either by wind or by running water

2. Industry Profile

There are two types of brick kilns units. The conventional type, the most common type in Pakistan, are those in which the brickkiln owners lease a piece of land for a limited period, usually not extending for more than few years, and establish a kiln on the land. The land is also the source of clay for the bricks.
Once the lease period is over the land is returned to its owners. Bricks are also manufactured in more formal industrial units. These usually have gas-fired furnaces and use clay from various locations to produce harder and generally what is considered as better quality bricks. These guidelines are applicable to both types of brick kilns.

Description

The use of fired bricks goes back more than three thousand years, and bricks are still the preferred house construction material in most countries around the world. The brick kilns in Pakistan is a large user of energy and also employs a large number of

workers, due to the labor intensive manual brick-making process. Suitable clays for manufacturing bricks exist almost everywhere, and the brick-making process can be done with simple manual methods. Brick kilns are generally found in clusters situated on the outskirts of main cities and towns. Firing the bricks, also termed baking, gives them strength and turns the plastic clay irreversibly into a permanent hard material that can no longer be slaked in water.Originally, bricks were fired in clamps or scove kilns.These are not permanent structures, but simply a pile of green bricks covered with a sealing layer of mud, with the fuel placed under the bricks.Later, permanent kilns were used for firing bricks.Both types of kiln are loaded with green bricks, which are heated upto the desired temperature and then cooled again before the bricks can be drawn from the kiln.All the heat energy used for firing is lost during cooling, and such so-called periodic kilns waste energy. In the late 1800's, a British engineer, W. Bull, designed an arch less version of the continuous Hoffmann kiln, which is now called Bull' s trench kiln (BTK). This version and variations are widely used in Pakistan and in the rest of the subcontinent. Its greatest advantage is its low cost of construction and relative to the periodic kiln, a comparatively low energy consumption. The kiln can be made circular or elliptical in shape. It is constructed on dry land, by digging a trench, 6–9 m wide, 2–2.5 m deep, and 100–150 m long. Gaps are left in the outer wall for easy access to the trench during setting and drawing of bricks. The green bricks to be fired are set in rows, two to three bricks wide, with holes in between that allow feeding of coal and a sufficient flow of air through the setting. A linking layer of bricks is made across the width of the kiln and half way up, to stabilize the setting. On top of the bricks, two layers of bricks, covered with ash or brick dust, seal the setting. A large piece of canvas, paper or metal sheet is placed vertically across the brick setting to block air from entering from the wrong side of the chimneys. Chimneys, 6–10 m high, made of sheet metal, are placed on top of the brick setting. The trench contains 200–300,000 bricks at a time. The firing in a BTK is continuous, day and night. Green bricks are loaded and finished bricks are drawn all the time. The fuel saving is achieved by reusing part of the energy that is otherwise lost in periodic kilns. As shown in **Exhibit 1**, the air for combustion is drawn through the already fired but still hot bricks. The cooling bricks transfer their heat to the combustion air, pre- heating it before it enters the firing zone. After combustion, the hot exhaust gases pass through the yet unfired bricks on their way to the chimneys. This pre- heats the bricks, so less fuel is needed to bring the bricks to the maximum temperature. Once every 24 hours the chimneys are moved forward 5 to 7 m. Daily output is 15–25,000bricks. In the dryer areas, a BTK with a fixed central chimney is now widely used. A large central flue channel is constructed in the center of the elliptical kiln, and through this, the exhaust gases flow to a brickwork chimney. Normally, the firing crew consists of six men organized in two teams, who take turns stoking the kiln. The fire men stoke the fire through removable cast iron holes at the top of the brick setting. Ideally, stoking should be done 3–4 times per hour, but especially at night, the workers tend to stoke large amounts of fuel at long intervals, causing an increase in fuel consumption. The firing of the kiln demands great skill, which may take years to master well. The fuel can be any combustible material or a combination of them; coal, lignite, peat, firewood, sawdust, agricultural waste, such as rice husk, brand or coffee shells. Natural gas or oil can also be used, but such fuel is normally too expensive. In Pakistan too, the cheapest of fuels are used in the firing of the bricks. Coal, wood, waste oil, tyres,

oily sludge etc all have been reportedly used. In Pakistan kilns are established either on one's own land or on land taken on lease. The land is supplied with water, usually from a tube well. Operations begin with digging the earth. The clay is mixed with water to prepare a paste. *Katcha* (unbaked) bricks are prepared from this paste with the help of moulds. Contract laborers (which sometimes includes their families) carry out this work. This process is followed by baking, locally known as *jalai* (burning).The person involved is called the *jalaiwala* .The final process is called *nikas*, which means carrying the bricks out of the kilns for onward transportation to the markets.

Environmental Impacts
Inefficient Use of Fuel

Traditional brick production technology requires a great deal of fuel during firing. In efficient production technologies and techniques and excessive fuel consumption are typical. Some are enumerated below:

- Improper kiln construction leads to excessive air leakage from the kiln system thus increasing the losses
- Small size chimney leads to excessive flue gas temperature to give effective draught.
- Heat loss from the side and top do not allow the attainment of full firing temperature and this leading to deterioration in quality of fired goods.
- Very high loss due to repeated heating of the kiln system because of high thermal mass

Resource Extraction and Depletion

Brick production canal the landscape in ways that are harmful to the environment and may hamper future business plans. Production can deplete local sources of fuel wood; increase deforestation and associated environmental impacts (such as soil erosion), leaving less wood for future use. It can also create clay pits or 'borrow' areas, which, if improperly managed, can become safety hazards. They may also accumulate rain water and become breeding grounds for mosquitoes. These effects, with associated soil erosion, may render land unusable for farming.

Inefficient Use of Non-Fuel Inputs

Improper brick formation and low- quality in puts result in a high number of bricks that crack or break during firing and must be discarded. This decreases output and increases waste disposal costs.

Dust

Dust, a byproduct of rick production, may cause serious health problems. Dust is most prevalent and dangerous when clay is extracted and finished bricks are transported following the firing process. Inhaling rock dust can lead to silicosis, a disease that affects lungs and breathing. Silicos is lowers the productivity of workers

and can have long term and even fatal effects on the health of workers, owners and people who live close by(including the families of workers and owners).

Other Particulates

Adding pigment to bricks produces chemical wastes that could harm workers, pollute the air and contaminate water supplies. Enameling requires materials that contain metals, and improper handling or excessive contact can lead to metal poisoning, skin irritations or lung disease.

Major product of poor combustion and solid fuel use are particulates in the flue gas. Suspended particulate matter in the moving chimney type of kiln is between 500-2,000mg/Nm^3, 100-500mg/Nm^3in a BTK with gravity settling chamber, and between 50 to 300 mg/Nm^3 in Vertical shaft brick kilns. The National Environmental Quality Standards mentions 500 mg/Nm^3 as the limit for coal fired furnaces.

Mitigation Options

Inefficient Use of Fuel

- Use alternative fuel types. Organic Wastes such as rice husk or sugar bagasse can supplements careful sources, such as wood without sacrificing efficiency.
- Raise kiln temperature using improved firing techniques. Adding combustible material, such as saw dust or rice husk, around the bricks can increase temperature and lower traditional fuel needs.
- Include a properly designed chimney of minimum 120 feet height along with an integral gravitational settling chamber. Design flue ducts so as to provide the least amount of resistance to the flue gases.
- Maintain kiln structures and repair cracks or leaks. Even small leaks can substantially increase fuel costs over time. Monitor structure and machinery to identify potential leaks.

Resource Extraction and Depletion

- Consider planting fast-growing tree species that can be coppiced easily to maintain a source of fuel.
- Return land to usable state. Set top soil aside before re moving clay and replace it after production ends. If, the topsoil has been lost or dispersed, fill the borrow pit With soil to avoid creating pools of water that attract mosquitoes.

Inefficient Use of Non-Fuel Inputs

- If little or no machinery is used, consider low-cost technology improvements. Decrease losses during firing by improving brick preparation: use an extruder to process clay, or form bricks with manual presses.

- Improve input quality. Bricks that crack during firing may have too much organic material in them or too much topsoil mixed in with clay. Train workers in identification of clay, and monitor quality control regularly.
- Consolidate or remove brick once production ends. This waste may be scattered over a large area and impede future farming activities.
  Investigate possible uses of broken or burnt brick for construction and other processes.

Dust

- Provide workers with face masks and instruct the mtouse masksin high-dust operations.
- Dampen brick so to keep dust own.

Other Particulates

- Improve storage practices. Close containers containing enameling material to prevent product loss through evaporation, spoilage or spills, and to minimize workers' exposure to fumes.
- Require workers to wear masks when they are using enameling chemicals.
- Ventilate kilns after firing. Dangerous gases and fumes escape during the firing process and can sicken workers removing bricks.
- Increase chimney heights to around 35 m.

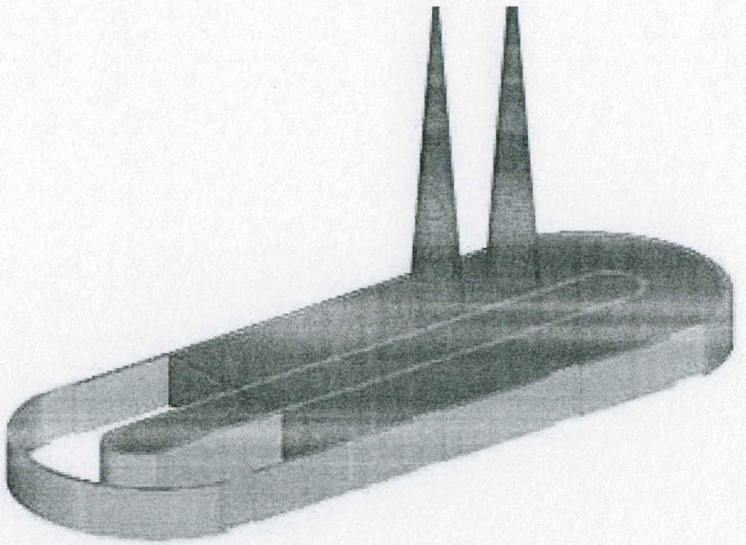

Exhibit1: A typical Bull's Trench Kiln (BTK)

Environmental Assessment Checklist

Section I: Project Description

File No_____(To be filled by EPA)

Date_____

GeneralInformation

1. Project Name or Title_____
2. Project Proponent (Department or Organization)_____
3. Address_____
4. Telephone_____
5. Fax _____
6. E-mail_____
7. Representative of the Proponent_____
8. Designation_____
9. Name of the person who conducted this assessment_____
10. Designation_____
11. Qualification _____

Permanent Brick Kilns

ProjectInformation

12. Project Location & GPS Coordinates_____
13. Cost of the Project_____
14. Area of the proposed land for the project
    - Total_____m^2
    - Proposed covered_____m^2
    - Open space_____m^2
15. List key equipment of the plant_____
    _____
    _____
16. Brief Project Description_____
    _____
    _____

Please attach a plot plan of the proposed project site showing the location of the key structures, access, utilities, units, etc.

17. Design production capacity of the unit_____
18. Number and type of qualification of required staff to run the project?_____
_____
19. What will be the expected water requirement for the project?_____m^3/d
20. What is the proposed source of water?_____
21. Where the wastewater from the unit be disposed?_____
22. Please describe any treatment system for the waste water planned?_____
_____
23. What is the height of the proposed stack?_____m
24. What will be the daily consumption of various fuel?_____
_____
25. What will be the source of clay?_____

Construction

26. Who owns the proposed land for the project?_____
27. What is the present use of the land?_____
28. Are there any squatter settlements on the land?_____
    If yes, please specify
    Number of settlements_____
    Will any compensation be paid to them?_____
29. Are there any structures on the proposed site now? ☐ Yes ☐ No
30. If yes,will any structure be demolished? ☐ Yes ☐ No
31. If yes,where the demolition waste will be disposed?_____
32. Are there any trees on the proposed site? ☐ Yes ☐ No
33. Willany tree be removed? ☐ Yes ☐ No
    If yes, how many?_____
34. Period of construction(start and end dates)_____
35. What major construction equipment(dozer,grader,crane,etc.)will be used?
36. Is construction work during the night planned? ☞ Yes ☞ No

Temporary Brick Kilns

Project Information

37. Project Location & GPS Coordinates_____

38. Brief Project Description_____

_____

_____

Please attach a plot plan of the proposed project site showing the location of the key structures, access, utilities, units, etc.

39. Design production capacity of the unit_____

40. Number and type of qualification of required staff to run the project?_____

_____

41. What will be the expected water requirement for the project?_____m^3/d

42. What is the proposed source of water?_____

43. Where the waste water from the unit will be disposed?_____

44. Please describe any treatment system planned for the wastewater?_____

_____

45. What is the height of the proposed stack?_____m

46. What will be the daily consumption of various fuel?_____

_____

47. What will be the source of clay?_____

48. Who owns the proposed land for the project?_____

49. Total period of lease_____

50. Total area of the proposed land for the project_____m^2

51. To what depth the clay will be removed?_____m

52. What is the present use of the land?_____

53. Are there any structures on the proposed site now? ☐ Yes ☐ No

54. If yes, will any structure be demolished? ☐ Yes ☐ No

55. Ifyes, where the demolition waste will be disposed?____

56. Are there any trees on the proposed site? ☐ Yes ☐ No

57. W illany tree be removed? ☐ Yes ☐ No

If yes, how many?_____

58. Period of operation(start and end dates)_____

59. Is operations work during the night planned? ☐ Yes ☐ No

Section-II: Screening

Is the proposed project located in an ecologically sensitive area?:

☞ Yes ☞ No

If the answer to the above questions is yes, then the project would require an initial environmental examination or an environment impact assessment.

Refer to the Khyber Pakhtunkhwa Environmental Assessment Rules, 2021 for appropriate category.

Section-III: Environmental Profile

1. Describe the terrain of the project area:

   ☞ Flat or Level(Slope<3%)

   ☞ ☞ Level to moderately steep (Slope 3%-30%)

   ☞ ☞ Moderately steep to mountainous(Slope>30%)

2. Are the resigns of soil erosion and slide any where within 500m of the proposed site?

   ☞ ☞ Yes

   ☞ ☞ No

   If yes, please describe (where, nature)_____

3. Is there any surface water body(river,canal,stream,lake,wetland)within 1,000 m of the proposed site?

   ☞ ☞ Yes

   ☞ ☞ No

   If yes, describe each water body:

Name (including type,ie,river,canal or stream)	**Dimensions**	**StatusandUses**(Isitpolluted?Isdomestic or other wastewater discharged to it? What are its uses, eg, agriculture, domestic, industrial, washing, fishery

4. Is there any ground water well on the proposed site or within 500m of the proposed site?

☞ ☞ Yes

☞ ☞ No

Ifyes,describeeachwell:

Type(Dugwell,tube well, hand pump) **andEnergySource** (Electricity, diesel engine, animal driven, manual)	**Location**(Village, road,mohalla,etc. and distance from the site)	**DepthandYield**	**Uses** (Drinking, agriculture,domestic, industrial, washing, livestock)

5. Based on the interview of the surrounding population nor a wild life expert,is any form of wildlife found on, or around the proposed site of the project?

☞ ☞ Yes

☞ ☞ No

If yes, please describe_____

_____

6. Are there any existing trees or vegetation on the proposed site?

☞ ☞ Yes

☞ ☞ No

If yes,how many?_____

7. Are there any reserved for estorprotected area within1,000mofthe proposed site?

☞ ☞ Yes

☞ ☞ No

If yes, please describe?_____

8. What is the present land use in the vicinity(roughly a radius of 500m)ofthe proposed site?

	Residential (Thick, Moderate, Sparse)	**Commercial** (Office, Shops, Fuel Stations)	**Open Land** (Parks, Farmlands, unutilized plots,barren land	**Sensitive Receptors andSitesof Cultural Importance**	**Other**
Description					

(*Please attach a map of the proposed project site and indicate roughly the area that you have considered for this evaluation*)

9. For any agricultural farmland on the proposed site and a radius of 500m around it, provide the following information:

   Main crop(s) and average yield_____

   Source of irrigation water _____

   Area affected by salinity or water logging_____

10. Pleasedescribeallthesensitivereceptorswithin500moftheproposedsite:

Type(schools, colleges, hospitals,and clinics)	**Name**	**Size**(Number of studentsor numberofbeds)	**Location** (Village,road, mohalla,etc.)	**Distancefrom Site**

11. Roughly, how many houses are within a radius of 500 m of the proposed site?

    _____

12. What proportion of the houses in the area are *pukka,semi-pukka, and*

kutcha?_____

13. How are the general hygienic conditions of the project area?

☞ ☞ Generally clean

☞ ☞ Fair

☞ ☞ Poor

14. Is there any bad odor in the project area?

☞ ☞ Yes

☞ ☞ No

What is the source of the odor?_____

15. What are the main sources of income of the surrounding community?_____

_____

16. Is the reany site of cultural importance(graveyard, shrine, mosque, archeological site) within 1,000 m of the proposed scheme?

☞ ☞ Yes

☞ ☞ No

If yes, please describe?_____

17. What other main sources of pollution exist within a radius of 500m of the proposed site:

Nameofthe Source	**TypeofPollution** (Noise,airwater)	**Location** (Village,road, mohalla,etc.)	**Distancefrom Site**

Section-IV: Impact Assessment

Potential Negative Environmental Impacts	*Tick, if relevant*	*Mitigation Measures*	*Tick, if proposed*	*Monitoring*
Inefficient use of fuel	☞	Alternative fuel types such as organic wastes (rice husk or sugar bagasse) will be used.	☞	
		Kiln temperature will be raised by using improved ☞ Firing techniques such as adding combustible material (e.g. ricehusk or saw dust) around the bricks		
		A properly designed chimney of minimum 120 Fee the light along with an integral gravitational Settling chamber will be included. Flue ducts will be designed so as to provide the least amount of resistance to the flue gases	☞	
		Kiln structures will be maintained and cracks or Leaks will be repaired.	☞	
		Kiln structures that requires less fuel such as ☞ Ventilated-shaft brick kilns(VSBKs)or bull trench kilns(BTKs)will be used.		
		Filters will be installed in chimneys	☞	
Resource extraction and depletion	☞	Fast-growing trees pieces will be planted that Can be coppiced easily, such as Leucaena or Albizia, to maintain a source of fuel	☞	

Continued...

...Continues

Potential Negative Environmental Impacts	*Tick, if relevant*	*Mitigation Measures*	*Tick, if proposed*	*Monitoring*
		Land will be returned to usable state by setting ☞ Top soil aside before removing clay and it will be replaced after production ends. If the topsoil has been lost or dispersed, the borrow pit will be filled with soil to avoid creating pools of water that attract mosquitoes		
Inefficient use of nonfuel chemicals	☞	Losses during firing will be decreased by ☞ Improving brick preparation: using an extruder to Process clay, or forming bricks with manual presses		
		Input quality will be improved (Bricks that crack ☞ During firing may have too much organic material In them or too much top soil mixed in with clay). Workers will be trained in identification of clay, and quality control will be monitored regularly.		
		Brick waste will be collected and removed once ☞ Production ends. Possible uses of broken or burnt brick for construction and other processes will be investigated.		
Dust	☞	Workers will be provided with facemasks and ☞ They will be instructed to use masks in high-dust operations		

		Bricks will be dumpen to keep dust down	☞	
Potential Negative Environmental Impacts	*Tick, if relevant*	*Mitigation Measures*	*Tick, if proposed*	*Monitoring*
Chemical pollution	☞	Storage practices will be improved such as Containers containing enameling material will be closed to prevent product loss through evaporation, spoilage or spills, and to minimize workers' exposure to fumes	☞	
		Workers will be required to wear masks when They are using enameling chemicals	☞	
		Kilns will be ventilated after firing (Dangerous Gases and fumes escaped during the firing process and can sicken workers removing bricks)	☞	

Section V: Undertaking

I,_____(*full name and address*) as proponent for _____(*name, description and location of project*) do hereby solemnly affirm and declare:

1. The information on the proposed project and the environment provided in Forms I, II and III are correct to the best of my knowledge
2. I fully understand and accept the conditions contained in the Guide lines for _____ (*name, number and version of the guidelines*)
3. I undertake to design, construct and operate the project strictly in accordance with the project described in form, submitted with this undertaking.

I undertake to implement all mitigation measures and undertake monitoring stated in Form IV, submitted with this undertaking.

Date_____

Signature _____

Name _____

Designation _____

(with official stamp/seal)

Witnesses:

	Signature	Name	Address
1	_____	_____	_____
2	_____	_____	_____

-sd-
Secretary to Govt. of Khyber Pakhtunkhwa
Climate Change, Forestry, Environment & Wildlife Department

No. SO(ENVT)/CCFE&WD/1-8/EPC-2025:

Copy for information to;

1. All members of Environmental Protection Council (EPC) Khyber Pakhtunkhwa
2. PS to Secretary Climate Change, Forestry, Environment & Wildlife Department, Khyber Pakhtunkhwa

20/8/25

Muhammad Ishaq
Section Officer (Environment)

NOTIFICATION

Peshawar Dated the 25/07/2025

No. SO(ENVT)/CCFE&WD/1-8/EPC-2025: In exercise of powers conferred under Clause xxii of Section 7 of the Khyber Pakhtunkhwa Environmental Protection Act, 2014, (Khyber Pakhtunkhwa Act No. XXX of 2022), the Khyber Pakhtunkhwa Environmental Protection Council (EPC) in its 3rd Meeting held on 13.05.2025 has been pleased to approve the following guidelines for General Environmental Approval (GEA);

GUIDELINES FOR COAL GRINDING

A. Project Description:

In coal grinding, various types of mills are commonly used to pulverize and dry coal before it is used as fuel in power plants or industrial boilers. Here are some of the commonly used mills in coal grinding:

1. Ball Mills: Ball mills are cylindrical devices with horizontal or vertical rotating chambers that contain grinding media (such as steel balls or rods) inside. Coal is fed into the mill, and the grinding media crush and grind the coal particles. The pulverized coal is then carried out of the mill by the air flow and classified by a classifier, which separates the fine particles and returns the coarse ones for further grinding.

2. Bowl Mills: Bowl mills, also known as Raymond mills or vertical spindle roller mills, use a rotating bowl or table and rollers to pulverize coal. The coal is fed into the center of the rotating bowl or table, and the rollers crush and grind the coal against the bowl or table. The pulverized coal is then carried out of the mill by the air flow and classified by a classifier.

3. Vertical Roller Mills (VRM): VRMs are increasingly being used in coal grinding applications. They consist of a rotating table or bowl and rollers that apply pressure to the coal bed. The coal is fed into the mill and is ground between the rotating table or bowl and the rollers. The pulverized coal is carried out of the mill by the air flow and classified by a classifier.

4. Hammer Mills: Hammer mills are used for the preliminary crushing of coal before it is pulverized in other grinding mills. They consist of rotating hammers that impact the coal and break it into smaller particles. The pulverized coal can then be further processed in other mills.

These are some of the commonly used mills in coal grinding. The choice of mill depends on various factors such as the desired fineness of the pulverized coal, the moisture content of the coal, the coal hardness, and the specific requirements of the application. Different mills may be used in combination to achieve the desired grinding and drying characteristics. Site selection:

A. Site selection plays very important role to reduce the impact of the project on the environment.
   - The site should be located in industrial areas or at a suitable site at least 500 m away from the nearest house/residential areas.
   - The existing development context of the site should be compatible with the activity.
   - At the design stage of new coal grinding unit, consideration should be given to the site lay-out, with a view to avoiding disturbances to the surrounding environment. In

particular, attention should be paid to the location of entrances, exits, car parks, access roads and amenities.

- The site should not be located within any Environmentally Sensitive Area (ESA) or other sites such as wetland, steep slope and in areas that are likely to be affected by hazards such as inland flooding and landslide.
- On-site wastewater disposal facility such as septic tanks and absorption pits shall be located not less than 30 m from any water course/water body.
- Existing natural drains and watercourses on or in the vicinity of the site shall not be tampered with.

B. Environmental Aspects

1. Solid Coal Unloading and Storage Areas

A major hazard associated with coal handling facilities is the possible formation of methane and coal dust especially in enclosed areas .

- Walls should be washed down frequently to prevent dust accumulation,
- Welding or electrical work should not be conducted in an enclosed area during unloading operations or if methane or coal dust is present.
- Smoking, open flames, and other potential ignition sources should be prohibited in any areas in which coal is being handled or processed.
- Water should NOT be sprayed on a smoldering coal pile. The degree of wetness in a coal storage pile is known to influence spontaneous heating.
- Belt magnets and metal detectors on coal belts must always be operating properly. Pieces of metal can cause sparks or become overheated which can ignite a fire or initiate an explosion. Scrap metal in a coal mill is particularly dangerous during mill shut down or start up.

2. Coal Mill Operation

- Fires or explosions most likely occur during startup and shutdown of a coal mill system. If a small amount of coal remains in the mill after it is shut down, it slowly increases in temperature. If the pulverized coal undergoes spontaneous heating and the coal mill is restarted with hot embers present, an explosion or fire is possible. Although this does not happen often, the chances increase when a coal mill is frequently shut down and then restarted.
- A coal mill system that goes down, particularly under load, must be treated with extreme caution. In several cases, fires or explosions have occurred when an employee opened an inspection door. Air admitted to the system allows oxygen to reach a smoldering pile of pulverized coal that then ignites explosively. Also, an inrush of air may create a pulverized coal dust cloud that explodes.

3. Accumulations of Pulverized Coal Dust

- All leaks, spills, and any accumulations of coal or coke dust must be cleaned up promptly around coal mill grinding and firing systems because of the potential for spontaneous combustion. Small piles or layers of coal or coke dust may spontaneously heat and start a fire.
- Coal dust spills or leaks must be cleaned up or repaired as soon as it can be safely done. A potentially serious problem exists if coal dust is allowed to accumulate inside a building or enclosure, for example around an unloading facility or because of a leaking coal conveying line.

If large accumulations of dust exist and a small explosion occurs, the dust build-up can be dispersed into the air as a result of the relatively minor first explosion and then produce a very large secondary explosion.

- When coal is freshly pulverized, volatile gases such as methane can be released and the result is no longer a coal dust/air mixture but what is termed a hybrid mixture.

4. Coal Mill Temperatures
   - Coal mill hot air inlet temperatures should never be more than 600□F and the outlet temperature should not exceed 200°F on Raymond coal mills. If the flow of raw coal to the coal mill is interrupted for any reason (for example: plugging, failure of the coal feeder, etc.), the outlet temperature of the coal mill can quickly climb to dangerous levels. The risk of explosions or fires can be extreme when the coal mill inlet temperature increases to more than 600°F or the outlet temperature is more than 200°F.
5. COMMON CAUSES OF FIRES OR EXPLOSIONS IN COAL SYSTEMS
   - Combustible gases

Coal may contain trace amounts of gases such as methane. When coal is handled, it can release some of these gases. Smoking, cutting, welding, or any source of open flame or high heat (such as a light bulb that could break and result in an electrical arc) should be strictly prohibited in coal handling areas.

- Spontaneous combustion

Oxidation at the surface of a coal particle --which is most active when the coal has been freshly pulverized - and condensation of water onto the coal are reactions causing heat that can lead to spontaneous combustion.

The ease with which coal will oxidize is extremely variable. The total exposed surface area is important because, when more fresh surface is exposed, oxygen has a higher chance of uniting with the coal with the result that the total heat liberated in a given time for a given weight of coal will be substantially greater. When water condenses, it releases heat which can be a significant factor in the initial increase in temperature of a coal dust mass. However, oxidation is how the coal ultimately reaches its ignition temperature.

Spontaneous combustion is primarily oxidation occurring on a fresh surface of a coal particle. The rate of oxidation increases rapidly as the temperature increases. For some coals a temperature increase of 20°F (10□C) can double the rate of oxidation. If heating from oxidation occurs in a mass of coal dust, the ignition temperature of the coal can be reached quickly if enough oxygen is present. When a build-up of coal dust is allowed to occur, the coal will begin to heat for reasons just explained. Therefore, it is important that all coal dust is immediately cleaned and dust is not allowed to build-up in piles.

- Debris in the coal mill

Every effort must be made to prevent scrap metal and other spark producing debris to enter the coal mill system. Pieces of metal in the coal mill can also be heated to temperatures high enough to start a fire or explosion by being in the mill while it is in operation.

- Solid fuel that spills over the bowl and into the area below the bowl can cause a fire since it is exposed to the hot drying air entering the coal mill. The coal mill scrapers will usually sweep the fuel pieces around to the debris chute and discharge them; however, a fire is likely to occur if a coal buildup occurs at the hot air inlet to the mill.
- Hot surfaces

Hot surfaces such as hot bearings, cutting, or welding can start a coal dust fire or explosion. Any unusual temperatures must be reported immediately and steps taken to solve the problem. Cutting and welding around the coal mill system should only be done under strict supervision by qualified personnel. The system should be inerted or washed down with water prior to cutting or welding.

- Coal Dust Explosions

A coal dust explosion will occur if the following three conditions exist:

1. The concentration of coal dust in the gas mixture is within the explosion limits. 2. The oxygen content in the gas mixture is sufficient for an explosion. 3. There is sufficient thermal energy to initiate an explosion. Theoretically, the absence of one of any one of these three factors would be enough to prevent a coal dust explosion. However, it is preferable to eliminate two or, possibly, all three factors. The thermal energy required for initiating an explosion could originate from several sources:

1. Spontaneous combustion or self-heating of the coal. 2. Overheating of the coal by hot gases used for drying that are too hot. 3. Overheated machine parts, such as hot bearings. 4. Metal entering the coal mill with the coal can cause sparks or become hot enough to start a fire or explosion.

-sd-
Secretary to Govt. of Khyber Pakhtunkhwa
Climate Change, Forestry, Environment & Wildlife Department

No. SO(ENVT)/CCFE&WD/1-8/EPC-2025:

Copy for information to;

1. All members of Environmental Protection Council (EPC) Khyber Pakhtunkhwa
2. PS to Secretary Climate Change, Forestry, Environment & Wildlife Department, Khyber Pakhtunkhwa

20/8/25

Muhammad Ishaq
Section Officer (Environment)