ENVIRONMENTAL STATEMENT

OF

RELIGARA COLLIERY

FOR 2018-19

SEPTEMBER 2019

ENVIRONMENT DIVISION
CCL, ARGADA AREA

EXECUTIVE SUMMARY

E.1 This Environmental Statement Report has been prepared with a view to fulfil the statutory obligations laid down by Ministry of Environment, Forest & Climate Change (MoEF & CC), Govt. of India vide their gazette notification no. G.S.R. 329 (E) dated 13th March 1992. The 'Environmental Audit' has been made mandatory through this notification. The 'Environmental Audit' has been subsequently renamed 'Environmental Statement' vide MoEF&CC gazette notification no. G.S.R. 386 (E) dated 22nd April, 1993.

E.2 Religara project is operating in Argada Area of Central Coalfields Ltd. The planned capacity of the Project is to produce 0.589 Million Tonnes per year of raw coal.

E.3 The coal is being produced by using opencast mining methods. A total of 2,68,994 tonnes of coal was produced during the year 2018-19. A total of 15,08,138 cubic metre of overburden (OB) has been removed in the year 2018-19.

E.4 The water although not used directly during the coal winning process, water is being consumed mainly for domestic purpose and for associated industrial activities like sprinkling for dust suppression, washing of HEMMs and for firefighting purposes. The water consumption for the assessment year 2018-19 was 2356m^3/day. Out of this 255 m^3/day was used for industrial purpose and 2101 m^3/day was used for domestic purpose.

E.5 The raw material i.e. High Speed Diesel (HSD) and Lubricant are being used for automobiles (mainly HEMMs) and machines while Explosive is being used for overburden and coal removal purpose. The consumption of HSD and explosives for the assessment year 2018-19 were 12,36,327 litres and 5,16,414 kg. respectively.

E.6 The Ambient Air Quality Monitoring is being carried out by CMPDI on a fortnightly basis as per the guidelines of Ministry of Environment Forest & Climate Change (MoEF&CC). The results reveal that concentration of parameters i.e. PM_{10}, $PM_{2.5}$ SO_2 and NOx in ambient air for most of the time and are within the prescribed standards.The quality of mine water at the disposal point is meeting the permissible limit. The noise level in the core as well as buffer zone are well within the prescribed norms. The noise generated in the project is of impulsive nature.

E.7 Hazardous waste are not being produced either from mining operations or from any pollution control facilities.

E.8 Solid waste generated during the process of coal winning is being used for physical and biological reclamation purpose.

E.9 At present following measures is being practiced for environmental management in the project:

(i) The water sprinkling is being done regularly on the haul roads and loading points.
(ii) The OB generated in the project is being reclaimed physically and biologically.
(iii) Tree plantations has been done in the project.
(iv) Workshop effluents are allowed to settle in sump before final discharge.

CHAPTER ONE

PROJECT DESCRIPTION

1.1 General

The Religara project is located in South Karanpura coalfield and is under the administrative control of Argada area of Central Coalfields Limited. The mine lies in between Gidi-A OCP in the south-west and Giddi-C in the north east.The project currently has the capacity to produce 5,89,759 tonnes coal/year.

1.2 Location

Religara project is located in north eastern part of South KAranpura coalfield of CCL. It falls in the Hazaribagh district of Jharkhand. It is bounded by latitude 23^0 40' 47" N and 23^0 41' 50" N and longitude 85^0 21'37" E and 85^0 23'10" E. It is included in the Survey of India Toposheet no. 73 E/6.

1.3 Communication

The Religara block is approachable through Coal trunk route taking off NH-33 at Naya More to Giddi by an all-weather metalled road. The block is also approachable by Nai Sarai-Giddi black top road. The block is well connected by road and railway. The nearest rail heads are Ramgarh and Ranchi road on Barkakana Dehri-on-sone-Gomoh loop line of Eastern Railway about 20 km away.. The nearest airport is at Ranchi at a distance 80 km.

1.4 Topography and Drainage

Religara colliery forms a part of lowland between Hazaribagh plateau in the north and Ranchi plateau in the south and represents undulating and uneven topography with intervening depressions. On the southeast of the block runs the Bundu hill range trending roughly NW-SE. This is the range with isolated hillocks rising to a maximum height of about 459 m above the sea level. The drainage is controlled by Marangarha/Marmaha Nallah. It flows in the south east direction and falls into Damodar river.

1.5 Mining System

Opencast mining system is being practiced in the project considering geo-mining conditions of the deposits namely (i) gradient of seams (ii) multiple seams. Shovel (electric), dumper mining system in combination with drill is being used for opencast coal mining.

CHAPTER TWO

ENVIRONMENTAL STATEMENT FOR COAL MINING PROJECT

Environmental Statement for the Assessment Year **2018-19**

Part-A

(I) **Name and address of the Project:**

Name: Religara colliery Project

Address: Project Officer

Place: Religara

District: Hazaribagh

(II) Industry category: Primary

(III) Production capacity: 0.589 million tonnes/year

(IV) Year of Establishment: 1925

(V) Date of the last Environment Report submitted: September, 2018

Part-B

Water and Raw Material Consumption

(I) Water Consumption (m^3/day)

	Industrial	**2018 -19**
(a)	Haul road dust suppression	**:** 280
(b)	Workshop	**:** 03
(c)	Fire-fighting	**:** Nil
(d)	Others (service building etc.)	**:** Nil
	Sub Total	**: 283** m^3/day

	Domestic	**2018 -19**
(a)	Colony	**:** 1314
(b)	Arboriculture	**:** Nil
	Sub Total	**: 1314** m^3/day
	Total	**: 1597** m^3/day

Name of product	Water consumption (per tonne of coal produced)	
	During Financial year (2018-19)	During Financial year (2017-18)
ROM Coal	Nil	Nil

Note: There is no direct relationship between water consumption and coal production.

(II) Raw Material consumption:

Name of raw material	Name of product	Consumption of raw materials (per tonne of coal produced)	
		During Financial year (2018-19)	During Financial year (2017-18)
		Nil	Nil

However, the following materials are being consumed for coal production

S.No.	Materials	2018-19	2017-18
01.	Explosives (in kg.)	5,16,414.50 kg.	7,74,028.90 kg
02.	HSD(in litres)	12,36,327	13,17,428
03.	Lubricants (in kg.)	40,489	43,026

Part-C

Pollution Generated

Pollutants	Quantity of pollutants Generated	% variations from prescribed standards with reasons
Water		
(a) Total discharge from mine	5910 m^3/day	The results reveal that all the parameter is under the prescribed limit. The quality of mine water at the disposal point vis-a-vis the prescribed standards are given in Annexure.

Air		
The PM_{10}, $PM_{2.5}$, SO_2 and NOx are main pollutants generated from coal mining project.	The quantity of air pollutants from mine is difficult to quantify. However, concentration of air pollutants are measurable & is given in Annexure.	The results of the monitoring clearly shows that air pollutants are under the prescribed limits except under certain climatological conditions.
Noise		
Operation of HEMMS generated noise	Recorded noise level are placed as Annexure.	The noise level in and around the project is under the prescribed limits.

Part-D
Hazardous wastes
(As specified under Hazardous Waste Management & Handling Rules, 1989)

Hazardous Waste	Total Quantity	
	During Financial year (2018-19)	During Financial year (2017-18)
Burnt Oil	Nil	Nil
Discarded Batteries	Nil	Nil

The process of coal mining, handling and dispatch do not give rise to production of any hazardous wastes.

Part-E
Solid Wastes

Solid Wastes	Total quantity of Solid Waste Generated in million cubic metres(Mm3)	
	During Financial year (2018-19)	During Financial year (2017-18)
From mining process (i) Top Soil (ii) OB	 Nil 1.508	 Nil 0.927
From pollution control facilities	Nil	Nil
Quantity recycled or reutilized	The Overburden generated during the coal winning process is being reutilized for the technical and biological reclamation along with the top soil.	

Part-F

Characteristics of Hazardous and Solid Waste and Their Disposal practice

Hazardous wastes are not being produced or released either from mining operations or pollution control facilities. However, due to operation of HEMMs, hazardous wastes viz. Burnt oil and discarded batteries gets generated. The process of coal winning by open cast mining process produces O.B and top soil as solid waste temporarily, as these materials are later used for land reclamation. During the year 2018-19, 1.508 Mm3 O.B were generated. The O.B generally consists of the following constituents:

1. Soil
2. Shale band (including carbonaceous shale)
3. Soft Sandstone.

Part-G

Impact of Pollution Control Measures on Conservation of Natural Resources and consequently on Cost of Production

Disposal Practice

(i) Top Soil

Top soil is a precious natural resource and it loses its natural qualities unless special care is taken during stripping, storage and carpeting of top soil. Land gets degraded due to mining operation. This degraded land is to be reclaimed.

(ii) Internal Dumps

Internal dumps and external dumps have been planned in a continuity. They have been planned during the planning stage of the project. Once external dumps get stabilized, they are proposed to be extended to cover the open pit by backfilling during coal extraction process.

(iii) External Dumps

Location of external dump is shown in the location plan given in Annexure-1. The Overburden in the colliery at present is being dumped internally.

AIR POLLUTION CONTROL MEASURES

In order to carry out mining in an eco-friendly manner, following air pollution control measures have been implemented:

- **Drilling:** Wet drilling is being used. However, drilling operation generates some fugitive dust. This is controlled by providing dust extraction & collection arrangements in the drills. Drills supplied are fitted with dust extraction and collection arrangement. Dust extraction and collection

arrangement in the drills do not have any impact on conservation of natural resources. This is being part of coal winning process thus do not have any additional impact on cost of production.

- **Blasting:** Blasting generates fugitive dust. Blasting is being carried out in congenial atmosphere. This do not have any impact on conservation of natural resources.This is being part of coal winning process, thus do not have any additional impact on cost of production.

- **Dust Suppression&/ or Extraction:** Dust suppression and/or extraction is being provided at different transfer points of coal stock, coal and OB transportation roads and on other service roads. The dust suppression is mainly carried out by water sprinkling. Water used for this purpose is mainly the mine water discharge. The cost of dust suppression and /or extraction is included in the overall cost of production as the cost for environment management measures.

LAND RECLAMATION:

Coal extraction process by open pit mining method requires removal of material overlying the coal. This material needs to be reclaimed as it will generate dust and to partly cover the void created by extraction of coal. Thus reclamation of OB dumps is being done as pollution control measure. The reclamation of OB dumps also helps in improving/restoring the natural resources in and around the project. Physical and biological reclamation cost is included in the overall cost of production as the cost for environment management measures.

COMPENSATORY AFFORESTATION:

Afforestation is being carried out on available spaces in and around the project as compensatory afforestation for degraded forest and waste land. This helps in improving the natural resources in and around the project. Cost of afforestation is included in the overall cost of production as the cost for environment management measures.

WATER POLLUTION CONTROL MEASURES:

Domestic Effluents:
Effluent from the colony is being treated in septic tanks and disposed off in soak away units. The cost of treatment and disposal of domestic effluent is included in the overall cost of production as the cost for environment management measures.

Mine Water:
Mine water is collected in the dip side of the mine in order to arrest the suspended solids. Thus the water discharge to natural water bodies is of acceptable quality. The part of this water is being used in the project for dust suppression, firefighting etc. The cost of pumping, treatment and discharge of mine water is included in the overall cost of production as the cost for environment management measures.

Surface Run-off:
Run off from quarry area, OB dump is being collected in garland drains at the toe of the dumps. This is then allowed to discharge in to natural water bodies. This cost is included in the overall cost of production as the cost for environment management measures.

Workshop Effluents:

Workshop effluent is being treated for the removal of oil and grease and suspended solids before discharge to natural water bodies. The cost of treatment of workshop effluent is included in the overall cost of production as the cost for environment management measures.

Part-H

Additional Investment Proposal for Environmental Protection Including Abatement of Pollution

- The Project will continue to carry regular environmental monitoring for air, water and noise pollutants as per the guidelinesof MoEF&CC.
- The Environmental Statement Report will be prepared for each assessment year as per the guidelines of Ministry of Environment Forest& Climate Change (MoEF&CC).
- The project will continue to take Consent to Operate (CTO) from Jharkhand StatePollution Control Board (JSPCB) for each year.
- The other proposal for additional investment for environmental protection and pollution abatement in the project is underconsideration.

Part-I

Any other particulars in Respect of Environmental Protection and Abatement of Pollution

The suggestions made by different statutory agencies viz. Ministry of Environment Forest &Climate Change (MoEF&CC), Central pollution Control Board (CPCB), Jharkhand State Pollution Control Board (JSPCB) etc. are being implemented from time to time in the project for better environmental conditions in and around the project.

30/09/19

Manager
Religara Colliery

Project Officer
Religara Colliery