The Member Secretary,
Jharkhand State Pollution Control Board,
T.A. Division (Ground Floor),
H.E.C. Dhurva, Ranchi – 834004
Jharkhand

WBD/EMC/4016/ 072 /21
Date: 23.09.2021

Subject: Submission of Environmental Statement of West Bokaro Colliery unit of West Bokaro Division, Tata Steel Limited for the year 2020-21

Dear Sir,

Please find enclosed herewith the duly filled "Environmental Statement" (Form-V) of **West Bokaro Colliery** unit of West Bokaro Division, Tata Steel Ltd. for the year 2020-21.

Kindly acknowledge the same & oblige.

Thanking you,
Yours sincerely,

Uday 23/9/21

Sr. Manager (Environment Management)
West Bokaro Division
Tata Steel Ltd.

Encl: As Above

Copy to: The Regional Officer, Jharkhand State Pollution Control Board, PTC Chowk, Matwari, Hazaribagh – 825301 (Jharkhand)

FORM - V

(See Rule -14)

ENVIRONMENT STATEMENT FOR THE FINANCIAL YEAR ENDING THE 31st MARCH, 2021

UNIT: WEST BOKARO COLLIERY, TATA STEEL LIMITED

PART - A

1	Name and address of the owner/ occupier of the industry, operation or process	:	Mr. Anurag Dixit, Chief (Q-SEB), West Bokaro Colliery TATA Steel Limited, P.O.- Ghatotand Dist. Ramgarh, Jharkhand-825314
2	Industry Category	:	Major
3	Production Capacity	:	7 MTPA Raw Coal
4	Year of Establishment	:	1948
5	Date of last Environmental Statement submitted.	:	24th August 2020

PART – B

WATER AND RAW MATERIAL CONSUMPTION

i. Water Consumption (m3/d):

Process : 33.64
Cooling/ Spraying in mine pits : 1877.2
Colony : 8618.2

Name of the product	Process water consumption per product output (m3/ton)	
	During the Previous Financial Year (2019-20)	During the current Financial Year (2020-21)
Raw Coal	0.129 (Process + Spraying)	0.141 (Process + Spraying)

ii. Raw Material Consumption:

Name of Raw materials	Name of the product	Consumption of Raw Material per unit of output	
		During previous financial year (2019-20)	During current financial year (2020-21)
Explosives (Both Coal + Overburden)	Raw Coal	0.129 kg/ton	0.144 kg/ton

PART – C

POLLUTION DISCHARGES TO ENVIRONMENT/ UNIT OF OUTPUT (PARAMETERS AS SPECIFIED IN THE CONSENT ISSUED)

Pollutants	Quantity of pollutants discharged (mass /day)	Concentration of pollutants in discharges (mass / volume)	Percentage of variation from prescribed standards with reason
Water	Zero Effluent Discharge is maintained. Mine water is being used in industrial and domestic purpose after treatment. Only during monsoon season mine water is pumped out to water body after proper settling.		

Air	Air quality is monitored and found within prescribed limit. Details for FY21 are as follows:

AAQ Report: Core Zone

Parameter	Location Q-AB	Location Q-SE	Standard
SPM	416.92	434.33	700
RPM	193.83	208.08	300
SO2	19.92	19.17	80
Nox	28.75	29.17	80

All values are in (µg/m3)

AAQ Report: Buffer Zone

Parameter	Pundi	Banji	Chainpur	Duni	Mukunda beda	Parsabeda	Standard
PM10	68.75	68.19	86.67	64.07	67.06	59.34	100
PM2.5	30.28	30.69	49.25	31.78	34.81	30.81	60
SO2	23.75	20.25	27.63	21.83	22.06	25.38	80
Nox	19.75	17.69	23.71	20.83	20.06	23.38	80

All values are in (µg/m3)

This is an opencast mine and does not have single point source of air pollutants. So, the quantity of air pollutants discharged in Kg/day cannot be ascertained. The above data shows the average ambient air quality during FY-21.

PART – D

HAZARDOUS WASTE

[as specified under Hazardous & Other Waste (Management & Transboundary Movement) Rules, 2016]

Hazardous Waste	Total Quantity (kg)	
	During the previous financial year (2019-20)	During the current financial year (2020-21)
(a) From Process		
1. Used Lead Acid Battery	1. 12.51 ton	1. 7.16 ton
2. Used lubricating Oil	2. 254.96 KL	2. 205.3 KL
3. Oil soaked cotton (jute)	3. 5.8 ton	3. 6.8 ton
4. Discarded Chemical Container	4. 1038 nos.	4. 519 nos.
5. Non-ferrous scrap	5. Nil	5. 15 ton
(b) From Pollution control facilities	Nil	Nil

PART – E

SOLID WASTE

Solid waste from this mine is generally of two categories i.e. Overburden / rejects removed during mining operations.

Solid Wastes		Total Quantity (kg)	
		During the previous financial year (2019-20)	During the current financial year (2020-21)
(a)	From Process: • From Mining as Overburden	184.49 lakh m^3	195.26 lakh m^3
(b)	From pollution control facilities	Nil	Nil
(c)	I. Quantity recycled or reutilized within the unit • Overburden	• 184.49 lakh m3 Entire OB is dumped inside mine lease.	• 195.26 Lakh m3 Entire OB is dumped inside mine lease.
	II. Sold	Nil	Nil
	III. Disposed	100%	100%

PART – F

THE CHARACTERISTICS (in terms of composition and quantum) **OF HAZARDOUS AS WELL AS SOLID WASTES AND INDICATE DISPOSAL PRACTICE ADOPTED FOR BOTH THESE CATEGORIES OF WASTES**

Category of Waste	Characteristics	Quantity	Disposal Practice
Solid Waste			
Over Burden	Non-coal material (*Solid*)	- 195.26 lakh m^3	- Dumped inside mine lease.
Hazardous Waste			
1. Used lead acid Battery –	Lead acid Battery (*Solid*)	1. 7.16 ton	1. Disposed-off to authorized recycler.
2. Used lubricating Oil	Used Oil (*Liquid*)	2. 205.3 kl	2. Disposed-off to authorized recycler.
3. Oil soaked cotton (jute)	Used Cotton (*Solid*)	3. 6.8 tonne	3. Storage in impervious bin.
4. Non-ferrous scrap	Non- Fe, Scrap (*Solid*)	4. 15 ton	4. Disposed-off to authorized agencies.

PART – G

IMPACT OF POLLUTION ABATEMENT MEASURES TAKEN ON CONSERVATION OF NATURAL RESOURCES AND ON THE COST OF PRODUCTION

- Adequate dust suppression arrangement is made on haul roads. Dust suppression with chemical dosing is adequately practiced in area, which not only reduce the water consumption but also effectively control the dust.
- Efforts were made to reduce the consumption of lubricant oil used in Heavy Mining Equipment's, by timely maintenance, arresting leakages and eliminating spillages. Similarly, attempts were also made to reduce the consumption of electricity in operations. In colony and offices, some electrical light points have been replaced with solar lights to save consumption of electricity.
- One Sewage Treatment Plant (STP) of capacity 250 KLD is working smoothly at one colony area. Additional 3 STPs of capacity 25 KLD have been installed for canteens and one colony area. Further, 2 more STPs of capacity 800 KLD are in construction for the remaining colony area.
- The combined impact due to implementation of pollution prevention and control measures on cost per tonne of ROM coal, of entire West Bokaro Division (Washery, PH, Mines, Eng. services, Logistic, etc.) is Rs. 81.28.

In addition to the above Tata Steel Foundation, West Bokaro is engaged in peripheral developmental activities in villages around the mine. The projects of the Society include irrigation and agricultural extension projects, plantation programmes, installation of solar street lights and illuminate villages on through low cost, construction of ponds in support to provision of irrigation water and for other domestic use and in recharging groundwater by arresting the flow of rainwater in downstream, creation of SAVE FOREST groups, civic amenities development, medicare and health education, rural sports, skill development and promotion of rural cultural activities.

PART-H

ADDITIONAL MEASURES/ INVESTMENT PROPOSAL FOR ENVIRONMENTAL PROTECTION INCLUDING ABATEMENT OF POLLUTION, PREVENTION OF POLLUTION

- During FY21, we planted 16,000 saplings in available sites within the lease area and further 12,000 plantations has been planned at mining area and dump slopes.
- Greenery over abandoned overburden, dump yard practiced which is a continuous process.
- Green belt along the one mining working pit boundary was done.
- Seeds and seed balls have been spread in the dump slopes for the stabilization.
- Use of surfactant with water to increase moisture retention time of haul road, which consequently reduces water consumption.
- Implementation of wet drilling interlocking system in the new drill machine.
- Implementation of electronic detonator system in blasting to reduce ground vibration and fly rock.
- Installation of green barrier in between access roads and working area provided to prevent dust pollution.
- Water Mist Canon has been deployed at highwall mining area.

- Additional fixed water sprinkling system installation work started on the permanent haul roads.
- We have established NABL accredited & JSPCB recognised Environment Laboratory for monitoring purpose. Also Online Ambient Air Quality monitoring is being practiced.
- ₹ 100.00 lakhs have been planned to be spent towards strengthening environmental monitoring & laboratory, continuous monitoring systems and solid waste management.
- Mist canon procurement is in process for the fugitive dust suppression at coal stock yard.
- Wheel washing facility installation is in process to check the mud on the tyres of outgoing coal carrying vehicles.

PART-I

ANY OTHER PARTICULARS FOR IMPROVING THE QUALITY OF THE ENVIRONMENT

- West Bokaro Division of TATA Steel Ltd. is committed to improve safety and environment by strictly practicing Environment Management System (ISO:14001). Various programs are arranged such as Sustainability Month, Green Month, World Environmental Day, World River Day, Earth Day, Biological Diversity Day, Forestry Day, World Water Day, Van Mohotsav for public awareness. West Bokaro Division of TATA Steel Ltd. is also certified to ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018.
- For biodiversity conservation and sustainable developed, a study along with IUCN have been conducted in all mining clusters and a sustainable development policy developed at group level is strictly practiced in all sites.
- Sir Dorabji Bio Diversity park (consisting Butterfly Park, Hibiscus Park & Medicinal Park), Nursery, Spice Garden, Mughal Garden were developed over OB Dump for preservation of native species, generation of self-employment and environmental protection through economic benefit. Additionally, Guava Park, Mango Park has been developed over OB dump.
- J N Tata Park has been developed over 10 acre of OB dump.
- Entire mining operation is targeting for reduction in consumption of natural resources such as fresh water, Diesel, explosive & lube to conserve natural resources & minimize impact on environment.
- The Company is having a full-fledged Environmental Management Department with personnel from relevant fields to take care of all environmental aspects relating to the mines of TATA STEEL. This department has in-house capabilities for monitoring various environmental parameters and suggesting to the management for necessary abatement measures.

Mr. Anurag Dixit, Chief (Q-SEB)
West Bokaro Colliery, TATA Steel Limited,
P.O. - Ghatotand, Dist.- Ramgarh, Jharkhand - 825314