ADITYA BIRLA
EMIL

Ref. No. EMIL/GEOL/ 457 /2020-21

Date—15.09.2020
(Through e-mail only)

To

The Member Secretary,
State Pollution Control Board, Odisha
Department of Forests & Environment,
Govt. of Odisha, Paribesh Bhawan,
A/118, Nilakantha Nagar, Unit-VIII
Bhubaneswar-751012

Sub: Submission of Environmental Statement in respect of Koira Iron Mines of Essel Mining & Industries Limited, Barbil for the year 2019-20.

Dear Sir,

Please find enclosed herewith the environmental statement report duly filled-in **Form-V** as prescribed under the Environment (Protection) Rules, 1986 & amendment thereof for the financial year **2019-20** in respect of **Koira Iron Mines.**

Thanking you,

Yours Faithfully,

OIC

For **ESSEL MINING & INDUSTRIES LTD.**

Dr. Khageswar Mahanta
Head (Geology, Envt & QC)

Encl: As above.

Cc: The Regional Officer, State Pollution Control Board, Sector-5, Rourkela-769002

The Director, Govt. of India, Ministry of Envt., Forests & Climate Change, Eastern Regional Office, A/3, Chandrasekharpur, Bhubaneswar-751023 (email-roez.bsr-mef@nic.in)

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FORM-V

(See rule 14)

Environmental Statement for the financial year ending with 31st March 2019

PART- A

1. Name and address of the owner/ occupier of the industry, operation or process	:	Koira Iron Mine Essel Mining & Industries Limited At/PO: Koira, Dist: Sundergarh Odisha -770048
2. Industry category Primary- (STC Code) Secondary- (STC Code)	:	Open Cast Iron Ore Mines (Large Scale)
3. Production capacity	:	6.0 Million Tonne Per Annum
4. Year of establishment	:	1971
5. Date of the last environmental statement submitted	:	12.09.2019

PART- B

Water and Raw Material Consumption:

(i) Water consumption (m^3/d)

1. **Process : 116**
2. **Cooling : Nil**
3. **Domestic : 80**

Name of the product(s)	Process water consumption per unit of products	
	During the previous financial year (2018-19)	During the current financial year (2019-20)
This is an open cast iron ore mines producing sized ore and fines. Water is required for dust suppression at C&S plant by the dry fog system & water sprinkling in other dust prone areas within the mines.		

(ii) Raw material consumption

Name of Raw Material	Name of Products	Consumption of raw material per unit of output	
		During the previous financial year (2018-19)	During the current financial year (2019-20)
This is an open cast iron ore mines. After blasting in the pits, RoM (Run off mine) is fed to Screening & Crushing unit to produce sized ore of 10-30 mm, 5-18 mm and -10 mm sized iron ores fines. Whatever material is fed for processing, same comes out as output of different size fractions. The total ROM production during the year 2019-20 is about 5815515 MT.			

* Industry may use codes if disclosing details of raw material would violate contractual obligations, otherwise all industries have to name the raw materials used.

PART-C

Pollution discharged to environment/unit of output

(Parameters as specified in the consent issued)

Pollutants	Quantity of pollution discharged (mass/day)	Concentrations of pollutants in discharges (mass/volume)	Percentage of variation from prescribed standards with reasons
Water	As the industry is being operated on dry process technology, no liquid effluent is generated from the screening & crushing process or mining activities. Domestic waste water generated from residential colony is treated through Sewage Treatment Plant and the treated water is utilized for plantation & vehicle washing purpose. Water quality for the year 2019-20 is summarized below.		

WATER QUALITY

Parameters	Koira nala up stream		Koira nala down stream		Karo nala upstream		Karo nala Down stream		Kurahari nala upstream		Kurahari nala downstream		STP		ETP		STANDARD (GSR 422E)
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
pH	6.65	6.99	6.67	7.08	6.67	6.98	6.73	7.23	6.62	6.91	6.69	6.94	6.64	7.52	6.68	7.12	5.5-9.0
TSS, mg/l	40	72	50	88	52	74	45	92	46	86	52	98	32	78	25	62	100
TDS, mg/l	194	284	208	268	178	264	192	296	175	278	206	302	810	1160	810	1140	2100
Oil & grease, mg/l	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	8	2	7	10
Fluoride, mg/l	0.32	0.43	0.40	0.47	0.32	0.48	0.29	0.51	0.36	0.46	0.25	0.47	0.48	0.63	0.35	0.56	2.0
Chlorides, mg/l	18	75	25	90	18	70	25	67	18	75	21	85	340	430	350	400	1000
Iron, mg/l	0.32	0.56	0.36	0.52	0.32	53	0.35	0.58	0.32	0.48	0.35	0.54	0.23	0.86	0.35	0.76	3
BOD, mg/l	6	14	9	18	6	13	8	15	10	56	7	22	12	27	9	28	30
COD, mg/l	30	64	35	100	18	72	25	96	50	136	34	156	50	160	25	164	250

Air

Concentration of ambient air quality parameters both in core & buffer zone varies in the following ranges throughout the year conforming the NAAQ standards. The monitoring results obtained from these locations are submitted half yearly to the OSPCB, CPCB, MoEF, IBM.

The ambient air quality in & around the lease hold area during the year 2019-20 is within the permissible limit of NAAQ standards as follows.

Parameters	Core Zone		Buffer Zone		Standards	Variation
	Min	Max	Min	Max		
PM_{10}	38	93	39	81	100 µg/m³ (24 Hrly)	No deviation. All the values remain within the permissible limit.
$PM_{2.5}$	12	35	11	29	60 µg/m³ (24 Hrly)	
SO_2	8.1	13	8.2	12.2	80 µg/m³ (24 Hrly)	
NO_X	9.4	14.5	9.6	13.7	80 µg/m³ (24 Hrly)	
CO	0.31	0.88	0.22	0.77	02 mg/m³ (8 Hrly)	

All parameters are in microgram/cubic meter except CO which is in mg/cubic meter.

PART-D
(Hazardous Wastes)

[As specified under Hazardous & other Wastes (Management, Handling & Trans boundary Movement) rules, 2016]

Hazardous waste	Total Quantity	
	During the previous financial year (2018-19)	During the current financial year (2019-20)
(a) From process - Used Oil	1.61 KL	6.09 KL
- Waste Containing Oil	0.24 MT	0.438 MT
(b) From pollution control facilities	Nil	Nil

PART-E

Solid Wastes

Sources	Total Quantity	
	During the previous financial year (2018-19)	During the current financial year (2019-20)
(a) From process (Overburden)	145784 TON	411560 TON
(b) From pollution control facility	Nil	
(c) Quantity recycled or Re-utilized	Nil	

PART-F

Please specify the characteristics (in terms of composition of quantum) of Hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

Hazardous Waste: (Used Oil & Waste Containing Oil)

Iron ore screening & crushing is based on "Dry Process". No Hazardous waste is generated from the process except used oil which is drained from Machineries / Equipments. It is used for lubrication. Burnt oil are stored in barrel and kept over an impervious floor under shed in a demarcated area till its disposal to authorized recycler.

During this period an amount of 5.04 KL has been sold out to authorised recycler/reprocessor M/s. N S Chemicals, Plot No.E-72, Chhend Colony, Rourkela, Dist: Sundargarh, Odisha-769015 and Raj Lubricants, AT/PO: Januganj, Remuna Golei, Balasore, Odisha-756019. Waste containing oil 0.438 MT (Cotton wastes, all filters are disposed to the impervious pit made within the hazardous waste yard. An amount of 1.05 KL of used/waste oils stored in sealed barrel in the waste yard.

Wastes containing oil or cotton waste are being disposed to an earmarked impervious pit.

Solid Waste:

The overburden mostly lateritic in nature are removed from the pit. The overburden generated from the process is utilized for back filling of a portion of the exhausted pit (Quarry no.06). The old waste dumps are already rehabilitated by plantation on maturity.

PART-G

Impact of pollution abatement measures taken on conservation of natural resources and on the cost of production.

Significant resource conservation measures undertaken as follows.

1. ETP is operational for the treatment workshop effluents. Similarly STP installed within the colony is being used for treatment of domestic sewage. Thus the treated water is reused for gardening & floor washing etc. purpose.
2. Plantation over the waste dumps & sub-grade dumps is undertaken to stabilize it.
3. Systematic, scientific & environment friendly mining operations and use of HEMMs helps in conservation and optimum use of minerals.
4. Extensive & Intensive Exploration Programme are conducted for defining better land use.
5. Controlled blasting techniques for better fragmentation minimizing the cost of production.
6. Use of Jaw/Cone Crusher & Screening Plant for processing of ore.
7. Proportionate Blending of different grades of ore for Meeting Various Buyers' requirement
8. Stacking of sub-grade & its future utilization
9. During the year 2019-20 a sum total of Rs. 137.15 lakhs was spent towards environmental management plan.
10. Against the proposal of 1000 saplings within the leasehold area, 1160 saplings are planted over the waste dumps, safety zone & reclaimed area under casualty replacement & gap planation during the period under review. Besides this about 800 nos of fruit bearing species distributed among the nearby schools and 30000 nos. of saplings distributed to villagers through Forest Dept. free of cost.

PART-H

Additional measures/investment proposal for environmental protection including abatement of pollution, prevention of pollution.

1. The Mine management celebrates and participates in Mine Environment & Mineral Conservation Week, Mines Safety Week & World Environment Day every year.
2. Installation of water flow meters at various water drawal points helps us on optimal use of water resources.
3. Implementation of Rain Water Harvesting Structures & Artificial Recharge Structures in and around of lease hold area for conservation & improvement of ground water potentiality and use of same for industrial purpose.
4. Greenery development at vacant land, Govt. waste land etc.
5. Waste dumps are stabilized through coir matting, grass seed followed with plantation programme.

6. Development of green belts around the mining lease areas and nearby villages.
7. The mine has already been certified to ISO-14001 (Environment Management System), ISO-9001 (Quality Management System), ISO–45001 (Occupational Health and Safety Management System) and maintaining the systems satisfactorily.
8. Top priority for WCM (World Class Manufacturing) activities for improvement in Safety, Environment, production, quality and sustainable development.
9. Three numbers of continuous ambient air quality monitoring stations (2 in core zone & 1 in buffer zone) are in operation within core and buffer zone of the lease area with data connectivity to OSPCB server.

PART-I

Any other particulars for improving the quality of the environment

1. We have full-fledged Environment Department for monitoring, maintenance of pollution control equipment and for green belt development.
2. Monitoring of ambient air quality, noise, soil, DG stack emission and water quality is being done regularly.
3. Three numbers of continuous ambient air quality monitoring stations (2 in core zone & 1 in buffer zone) are installed within core and buffer zone of the lease area.
4. Maintenance department is doing regular checking and scheduled maintenance of all the pollution control devices and equipments & HEMMs.
5. Administration dept is taking care of Housekeeping and civil department is taking care of operation of STP & ETP under the guidance of Geology & Environment department.
6. Horticulture Department is taking care of tree plantation and green belt development.
7. Fruits bearing saplings are distributed free of cost to the nearby villagers.
8. Organize various awareness programmes in the nearby villages.

Dr. Khageswar Mahanta
Head (Geology, Envt & QC)