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REGIONAL OFFICE
STATE POLLUTION CONTROL BOARD, ODISHA
(DEPARTMENT OF FOREST & ENVIRONMENT, GOVERNMENT OF ODISHA)
AT - Baniapat, P.O. - College Road, Dist - Keonjhar - 758001

No. :

Date :

To,
The Senior Environmental Engineer, L-I (C)
State Pollution Control Board, Orissa
Bhubaneswar

Sub: Inspection report of M/s Rungta Mines Limited (Sponge Iron Division)
at: Karakolha, Po: Thakurani in Keonjhar district.

Sir,

With reference to the subject cited above please find enclosed the inspection report of M/s Rungta Mines Limited (Sponge Iron Division) at: Karakolha, Po: Thakurani in Keonjhar district with respect verify the pollution control system in place and compliance to the Consent to Operate order.

This is for your kind information and necessary action.


Yours faithfully,

Encl.: As above

REGIONAL OFFICER

Memo. No. 485 /Dt 24/4/2012

: Copy to the Director, M/s Rungta Mines Ltd., (Sponge Iron Division), Main Road, Barbil, Dist.: Keonjhar-758035, Odisha for kind information.


REGIONAL OFFICER

INSPECTION REPORT OF M/s RUNGTA MINES LIMITED (SPONGE IRON DIVISION) AT: KARAKOLHA, PO: THAKURANI, VIA: BARBIL IN KEONJHAR DISTRICT

The unit was inspected by the undersigned on 18.04.2017 to verify the adequacy of pollution control system in place. Sri Pranaya Kumar Deo, Sr. General Manager (Commercial) and Sri C. K. Jena (DGM, Works) of the unit was present during inspection.

The unit has five numbers of Coal Based DRI Rotary Kilns (i.e. Kiln I, II, III, IV & V) of 100 TPD capacity each. Consent to operate has been granted for production of sponge iron 5x100 TPD which is valid up to 31.3.2018.

Sponge iron production during the year 2016-17 was 147441.300 MT. The average production of sponge iron is about 404 MT/Day against the Consented capacity of 500 TPD. On the day of inspection kiln-I, Kiln-IV and Kiln-V were in operational condition while kiln-II and Kiln-III were under normal shut-down for maintenance work.

WATER SOURCE AND POLLUTION CONTROL MEASURES ADOPTED:

The unit uses ground water for fulfilling water requirement and there are five numbers of bore wells to which flow meter has been provided in four number of bore wells. Water from four numbers of bore well is exclusively used for industrial purpose (3 for industrial process and 01 for domestic use inside the factory) while one is temporarily not in use. Each bore well has been provided with a water pump of 3 HP capacity.

The unit uses water for domestic use, cooling purpose and for pollution control measures i.e. dust suppression. About 480 KLD water is used for domestic and industrial purpose.

The unit uses about 30 KLD water for domestic use inside the plant premises as well as for supply to the outside village. Domestic wastewater is discharged to soakpit via septic tank. About 400 KLD makeup water is used for cooling the rotary kilns and the water is again recycled back after cooling in the settling tank. About 50 KLD water is used for dust suppression/sprinkling on the road inside the plant premises, solid waste dump site and other working areas.

No industrial waste water is generated nor discharged outside the factory premises. To check the runoff water during rainy season the unit has provided garland drains and finally discharges to a settling pit having two chambers. The unit has constructed a rain water harvesting pond 25mX18mX3.45m inside the unit premises having two series of settling pits of size 12.5mx14mx3.45m.

The unit is maintaining a separate record for domestic water and industrial process use and submitting Cess Return and fee to the Board. The unit has made water cess payment of Rs. 1,00,704 and Rs. 618 along with interest for the assessment period May'03 to March'16 and April'02 to April'03. The unit has also submitted the water cess return online for the period 2016-17.

AIR POLLUTION SOURCE AND CONTROL MEASURES ADOPTED:

The unit has installed three numbers of DRI Kilns (i.e Kiln 1, 2 & 3) at one location and two numbers of DRI Kilns (i.e Kiln 4 & 5) at another location in the same industrial premises. Each of the two sections i.e. (i) Kiln 1, 2 & 3 and (ii) Kiln 4 & 5 have their respective raw material handling section, air pollution control equipments, ESP and stacks.

1. Raw material storage:

The unit has two separate raw material handling yard near the respective kilns (i.e. Separate yard for Kiln 1, 2 & 3 and another separate yard for Kiln 4 & 5). Coal is stored under cover shed and also outside in the open yard. 14 numbers of fixed water sprinklers has been provided at the two numbers of stock yards. Dolomite is stored inside closed shed. Sized iron ore are procured from outside and directly used. Iron ore is stored in open space. 14 numbers of fixed water sprinklers has been provided at the two numbers of stock yards.

2. Raw material processing and other process areas:

The unit has provided pulse jet bag filter to various sections i.e. at the (i) Coal Circuit (crusher and screen), (ii) Stock House, (iii) Cooler Discharge, (iv) Transfer House/Intermediate Bin and (v) Product House.

The coal dust generated from the bag filter house and the coal circuits of Kiln 1, 2 & 3 are stored in a designated area inside the factory premises and used in the kiln.

All the bag filter houses in different section of DRI Kiln No. 1, 2 & 3 (i.e stock house, cooler discharge, product house, Transfer House/intermediate bin) has been attached to the pneumatic dust handling system with a common MS silo of 100 cubic meter capacity. The bag filter attached to the cooler discharge is having 576 nos. of bags, 60,000 m3 ID fan capacity and 15.2m stack height. The unit has to provide porthole and platform on the stack connected to the above bag filter for stack monitoring.

All the bag filter houses in different section of DRI Kiln No. 4 & 5 (i.e stock house, cooler discharge and product house) has been attached to the pneumatic dust handling system with a common MS silo of 100 cubic meter capacity.

The unit has provided five numbers of Electrostatic Precipitator for the five numbers of Kilns (i.e. Kiln 1, 2, 3, 4 & 5). The flue dust from the individual rotary kiln is cooled through its respective heat exchangers and then passed through ESPs. The clean air of Kiln 1, 2 & 3 is passed through a common MS stack of 32 meters height from the ground level. The flue dust collected from the hopper of individual ESP is transferred through pneumatic dust handling system to a common silo of 60 cubic meter capacity.

Similarly the clean air of Kiln 4 & 5 after passing the respective heat exchanger and ESPs is passed through a common MS stack of 32 meters height from the ground level. The flue dust collected from the hopper of individual ESP is transferred through pneumatic dust handling system to a common silo of 60 cubic meter capacity.

The dust from the all the heat exchangers are collected in respective hopper and discharged to a concrete pit constructed below the hopper and manually removed.

The unit has provided energy meters for the pollution control equipments (ESPs) and the unit submits the monthly electrical consumption to the Board. The unit is also maintaining a log book for the above purpose. All the conveyor system connected to the different section of the sponge iron unit has been covered by GI sheet.

The unit has installed 2 nos. of DG set (i.e. 750 & 500 KVA capacities) for emergency purpose of the operation of the Kiln 1, 2 & 3 and other equipments. Another DG set of 750 KVA capacity has been provided for emergency purpose of the operation of the Kiln

4 & 5 and other equipments in that section. The DG set have been kept under shed and adequate stack height has been provided to it.

3. Transportation / haulage Road:

The internal road from the main gate to the coal stock yard and along the Kilns of section 1 and Section 2 and other roads have been concreted. The unit has also provided 80 nos. of fixed water sprinklers along internal roads and the working areas.

The unit has also provided two numbers of mobile water tankers of 20 KL capacity each which sprinkles water 1-2 times a day on the haulage road to reduce fugitive dust. Boundary wall has been provided all around the unit and plantation has been done along the boundary wall and other open spaces.

ENVIRONMENTAL MONITORING:

Stack gas monitoring was conducted at the stack attached to the Electrostatic Precipitators and ambient air quality at three locations and the analysis report is presented below:

A. STACK MONITORING

Sl. No.	Date of monitoring	Location	Particulate matter Concentration (mg/Nm ³)	Prescribed Standard for Particulate matter Concentration (mg/Nm ³)
1	18.04.2017	Common Stack attached to ESP of Kiln 1, 2 & 3	49	100
2	18.04.2017	Common Stack attached to ESP of Kiln 4 & 5	63	100

B. AMBIENT AIR QUALITY MONITORING

Sl. No.	Date of monitoring	Location of sampling point	Particulate Matter (PM ₁₀ µg/M ³)	Prescribed Standard (µg/M ³)
1	18.04.2017	(i) At the boundary near plant main entrance gate	90	100
		(ii) At the boundary near Brick plant	86	100
		(iii) At the boundary near back side gate	81	100

The unit has installed Continuous Emission Monitoring System at (i) **Common Stack attached to ESP of Kiln 1, 2 & 3** (ii) **Common Stack attached to ESP of Kiln 4 & 5** for the parameter **Particulate Matter and SO₂**. The online data during the time of Stack monitoring is as follows:

Detail Data

DateAndTime	1SPM	2SPM
18 Apr 2017 10:00	20.16	22.39
18 Apr 2017 11:00	40.83	51.96
18 Apr 2017 12:00	20.32	29.85
18 Apr 2017 13:00	20.17	31.23
18 Apr 2017 14:00	20.17	37.11
18 Apr 2017 15:00	18.75	37.95
18 Apr 2017 16:00	19.79	37.39
18 Apr 2017 17:00	17.85	38.23

The Particulate matter concentration during the time of stack monitoring was found to be 40.83 mg/Nm³ for CEMS-1 (Common Stack attached to ESP of Kiln 1, 2 & 3) and 51.96 mg/Nm³ for CEMS-2 (Common Stack attached to ESP of Kiln 4 & 5) against the analysis result of 49.00 mg/Nm³ and 63.00 mg/Nm³, respectively.

SOLID WASTE GENERATION AND ITS DISPOSAL

The solid waste generated from the unit is (i) Char, (ii) ESP and heat exchanger dust, (iii) Floor sweeps and (iii) Dust generated from different bag filters.

The unit is dumping solid waste in two sites, one land of 20 Acres at a distance of 2.0 Km and another land of 5.19 acres at a distance of 4 Km from the plant. Some parts of the dump site has been covered with soil and plantation has been undertaken on it. The unit has also provided garland drains along with settling pit around the solid waste dump area. The unit has also acquired another site of 5.08 acres about 2.0 Km from the plant site. Boundary wall has been provided around it and dumping of solid waste has not been started at this site. The unit has provided mobile water sprinklers for dust suppression around the solid waste dump area.

HAZARDOUS WASTES GENERATION AND ITS DISPOSAL:

The unit has obtained authorization under the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 and is valid upto 31.3.2019. The unit has provided the Environmental Information display board at the main gate for public view with respect to Air, Water and Hazardous Wastes.

Management Practices of Hazardous Waste: Hazardous waste generated by the unit during 2015-16 and 2016-17 is as follows:

Sl. No.	Hazardous waste	Quantity Generated	
		2015-16	2016-17
1	Used Oil	600 Ltr.	500 Ltr.
2	Waste containing oil	30 kg	20 kg
3	Discarded container	15 Nos.	10 Nos.

The hazardous wastes generated from the unit are used oil, waste containing oil & discarded container. Used oil is generated from the gear boxes and other equipments and the same is stored in MS barrels and kept under shed with proper leveling.

PLANTATIONS:

The unit has planted trees all along the boundary of the factory premises and other open spaces. The unit has planted about 5000 sapling inside the plant premises, dump area and village road for the year 2016-17 and in total 37,000 trees has been planted and the growth was found to be satisfactory.

COMPLIANCE TO THE SPECIAL CONDITION OF CONSENT TO OPERATE ORDER

Sl. No.	SPECIAL CONDITION	COMPLIANCE
AIR POLLUTION CONTROL		
1	The ESP installed at the kiln/kilns shall be operated efficiently and continuously so that particulate matter emission from the stack shall meet the prescribed standard of the Board indicated in 'Table-C'. The industry shall ensure continuous and effective operation of the APC devices through preventive maintenance.	Stack gas monitoring was conducted at the stack attached to the Electrostatic Precipitators. Analysis report of the particulate matter emission from the stack is observed to be meeting the prescribed standard of the Board.

ANNEXURE :XXIII Contd..

2	There shall no leakage of flue gas through the emergency caps and slip rings or any other process areas of DRI kilns except during exigencies.	There was no leakage of flue gas from the emergency caps and slip rings or any other process areas of the kilns.
3	The Pneumatic Dust Handling system installed at the hoppers of ESPs and BFs shall be operated continuously and effectively so that no fugitive dust nuisance is created.	The pneumatic dust handling system installed at the hoppers of ESPs and Bag filters was observed to be working efficiently.
4	Telescopic chute shall be installed at the bottom of hoppers/silo wherever applicable to prevent emission of fugitive dust during material transfer/unloading.	Telescopic chute has been provided at the bottom of the hoppers and silos to prevent emission of fugitive dust during material transfer/unloading
5	Iron ore and coal shall be stored under covered shed. Material storing shall be covered with adequate sprinkler facility.	The unit has two separate raw material handling yard near the respective kilns (i.e. Separate yard for Kiln 1, 2 & 3 and another separate yard for Kiln 4 & 5). Coal is stored under cover shed and also outside in the open yard. 14 numbers of fixed water sprinklers has been provided at the two numbers of stock yards. Dolomite is stored inside closed shed. Iron ore is stored in open space. 14 numbers of fixed water sprinklers has been provided at the two numbers of stock yards.
6	Dust suppression facility by provision of adequate water sprinkling shall be made at the active dumping area and roads to prevent dust nuisance in the area.	The unit has provided two numbers of mobile water tankers of 20 KL capacity each which sprinkles water 1-2 times a day on the active dumping area and haulage road to prevent dust nuisance in the area.

7	The industry shall comply with all the stipulations contained in the Gazette Notification of Govt. of India vide No. 155, dtd. 31.03.2012 (copy enclosed). For emission standard, the details of 'Table-C' of this order is applicable.	----
8	Accumulation of dust, solid waste and accretion material in the work zone and non-dumping areas inside the factory premises shall be avoided. The work zone area shall be properly cleaned either manually or mechanically every day and the dust so collected shall be disposed off in the designated dump site.	The unit is transporting and disposing off the bag filter dust, solid waste and accretion materials through covered vehicle to the designated dumping area regularly. Separate housekeeping teams have been engaged for regular cleaning of work-zone area. The House keeping was found to be satisfactory.
9	The approach roads and all the internal roads shall be fully concreted / blacktopped. All the roads shall be cleaned periodically to avoid accumulation of dust. Adequate sprinkling facility, preferably by fixed water sprinklers shall be provided alongside all the internal roads to prevent generation of fugitive dust during vehicular movement.	<p>The internal road from the main gate to the coal stock yard and along the Kilns of section 1 and Section 2 and other roads have been concreted. The unit has also provided 80 nos. of fixed water sprinklers along internal roads and the working areas to prevent generation of fugitive dust during vehicular movement.</p> <p>The unit has also provided two numbers of mobile water tankers of 20 KL capacity each which sprinkles water 1-2 times a day on the haulage road to reduce fugitive dust.</p>
10	D.G. sets should be acoustically enclosed with anti-vibration measures and equipped with A.M.F. (Auto Mains Failure Device) for auto changeover of power supply from grid	The unit has installed the accumulator system in the emergency cap of the Kilns. At the time of power failure, automatically the accumulator system gets on in the

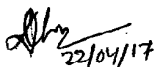
	to D.G. in the event of power failure. The AMF Panel should preferably be PLC (Programmable Logic Control) based. Dedicated D.G. sets of adequate capacity shall be installed to ensure adequate standby power supply to run all pollution control devices of the plant in the event of power failure.	emergency cap and it takes only 30 seconds for change over and 2 minutes for the DG to start and run all pollution control devices. The DG room is acoustically enclosed.
11	The industry shall put up sign Boards at appropriate places with nomenclature of the stacks in consultation with Regional Officer of the Board. It shall install electronic display Board in front of main gate to display the monitoring data, prescribed standard for public information.	<p>The unit has put of the sign boards for display of environmental information for public at the appropriate places as per the direction of the board.</p> <p>The unit has also installed an electronic display Board in front of main gate to display the environmental monitoring data, prescribed standard for public information.</p>
12	The ambient air quality shall confirm to the National Ambient Air Quality Standards as per the notification of MoEF dated 16 Nov 2009 (Annexed).	Ambient air quality monitoring was conducted at three nos. of location at the boundary of the plant. The analysis result is within the prescribed standard.
WATER POLLUTION CONTROL		
1	Under no circumstances there shall be any discharge of any effluent to outside the factory premises. Water used for cooling purposes shall be fully recycled.	No industrial waste water is generated nor discharged outside the factory premises. Water used for cooling the rotary kilns is again recycled back after cooling in the settling tank and reused.

2	The domestic effluents shall be suitably treated in STPs / septic tanks flowed by soak pits so as to meet the prescribed standard of the Board before discharge/reused.	No residential colony exists inside the plant premises. However Domestic wastewater generated from the office is discharged to soak-pit via septic tank
3	The runoff water from the whole factory premises including solid waste dumping area shall be collected through dedicated garland drains and shall be adequately treated by a series of settling tanks of appropriate capacity so as to meet the prescribed standard of the Board before discharge to outside / reused.	To check the runoff water during rainy season the unit has provided garland drains and a settling pit having two chambers which ultimately goes to the rain water harvesting pond of size 25mX18mX3.45m constructed inside the unit premises. The unit has also provided garland drains along with settling pit around the solid waste dump area.
4	Dumping of solid waste shall be made at designated locations in a systematic manner with proper engineering applications by providing proper slope, angle, berms, height, toe wall, retaining wall and road network. The active dumping area shall be kept at minimum. The exhausted dump area shall be technically reclaimed by spreading a layer of soil with proper compaction and consolidation. Biological reclamation of the same shall be made by planting saplings of appropriate species. Adequate provision for watering of plants and protection of trees shall be made.	The unit is transporting and disposing off the solid waste through covered vehicle to the designated dumping area regularly. Stabilized part of the dump site has been covered with soil and plantation has been undertaken on it.
5	The industry shall have adequate space at point of time for waste disposal at least for a period of next two years. Before using any new patch of land / site for solid waste	The unit is dumping solid waste in two sites, one land of 20 Acres (apprx.) at a distance of 2.0 Km and another land of 5.19 acres at a distance of 4 Km from the plant. Some

	dumping, the industry shall obtain prior consent to establish of the Board.	parts of the dump site have been covered with soil and plantation has been undertaken on it. The unit has also acquired another site of 5.08 acres about 2.0 Km from the plant site. Boundary wall has been provided around it and dumping of solid waste has not been started at this site.
6	Consent to Operate is subject to availability of all other statutory clearances required under relevant Acts / Rules and fulfillment of required procedural formalities.	----

OBSERVATION & RECOMMENDATIONS:

- 1) The unit has installed electronic display Board in front of main gate to display environmental Information for public information.
- 2) On the day visit, ESPs and bag filters installed at various dust generating areas were found to be running smoothly. The pneumatic dust handling system installed at the hoppers of ESPs and Bag filters was observed to be working efficiently.
- 3) No leakage of flue gas was observed through the emergency caps and slip rings of DRI kilns I, IV & V.
- 4) No fugitive dust emission was found during material transfer/unloading from the bottom of hopper of Product House.
- 5) The overall house-keeping was found to be satisfactory.


 22/04/17
Er. D. L. Mahapatra
 (Asst. Env. Engineer)