BY REGD POST

ORISSA

OFFICE OF THE
STATE POLLUTION CONTROL BOARD, ORISSA

Parivesh Bhawan, A/118, Nilakantha Nagar, Unit-VIII,
Bhubaneswar - 751 012

No. 11242 /Ind-II-NOC- 4427 Date 7/5/08

OFFICE MEMORANDUM

In consideration of the application for obtaining Consent to Establish **for Gandhamardan 'B' Iron Ore Mines of the Orissa Mining Corporation Ltd (Expansion proposal)** the State Pollution Control Board has been pleased to convey its Consent to Establish under section 25 of Water (Prevention & Control of Pollution) Act, 1974 and section 21 of Air (Prevention & Control of Pollution) Act, 1981 for enhancement of **production of Iron ore of quantity from 2.5 million Ton/Annum to 9.12 MTPA with 5.5 Million Ton/Annum capacity with Primary crusher 1200 TPH at hill top and secondary crusher 700 TPH at down hill with non slewing single boom traveling type of stacker of capacity 1200 TPH and ore swinging boom type reclaimer of capacity 750 TPH (over mine lease hold area of 1590.8673 Ha.) At – Suakati** in the district of **Keonjhar** with the following conditions.

GENERAL CONDITIONS.

1. This Consent to establish is valid for the product, quantity manufacturing process and raw materials as mentioned above & for a period of five years from the date of issue of this letter, provided commencement of production of the proposed project has not taken place in the meantime.
2. If the proponent fails to start operation of the project but substantial physical progress has been made then a renewal of this consent shall be sought by the proponent.
3. Adequate effluent treatment facilities are to be provided such that the quality of sewage and trade effluent satisfies the standards as prescribed under EP Rule or as prescribed by the Central Pollution Control Board and/or State Pollution Control Board or otherwise stipulated in the special conditions.
4. All emission from the industry as well as the ambient air quality and noise are to conform to the standards as laid down under EP Rule/Central Pollution Control Board/State Pollution Control Board of otherwise stipulated in the special conditions.
5. Adequate method of disposal of solid waste is to be adopted to avoid environmental pollution.

6. The industry is to comply to the provisions of EP Act, 1986 and the rules made thereunder with their amendments from time to time such as the Hazardous Chemical/Manufacture, Storage and Import Rule, 1989 etc. The industry is also to comply to the provisions of Public Liability Insurance Act, 1991, if applicable.
7. The industry is to apply for grant of Consent to operate under section 25/26 of Water(Prevention & Control of Pollution)Act, 1974 & Air (Prevention & Control of Pollution)Act, 1981 (If coming under air pollution control area) at least 3 (three) months before the commercial production and obtain Consent to Operate.
8. **This consent to establish is subject to statutory and other clearances from Govt. of Orissa and / or Govt. of India as and when applicable.**

SPECIAL CONDITIONS : -

1. **The mine has to seek environmental clearance as per the EIA notification 2006 or as recommended by EAC/SEAC. However, commencement of mining activity for proposed expansion shall be done after obtaining environmental clearance or as recommended by EIAA/SEIAA**
2. The enhanced production of iron ore and manganese ore will be achieved through deployment of following equipments/machineries

Unit operation	Name	Dia/Capacity	Numbers		Total
			Flank ore	Hill Top ore	
Drilling	IR drill	100/150 mm	7	5	12
	Compressor	350 cfm	-	-	12
Excavation & loading	Backhoe	0.9 m3	2	-	2
	Backhoe	1.7 m3	1	-	1
	Shovel	5 m3	-	4	4
Transporting	Tipper	10 t	15	-	15
	Dumper	50 t	-	28	28
Leveling & road making	Dozer	300 HP	1	2	3
Mineral processing	Crushing unit	110 tph	1	-	1
	Crushing unit	650 tph	-	1	1
	Crushing unit	1200 tph	-	1	1
Environmental protection & industrial use	Water Tanker	10 kl	3	2	5
		20Kl	-	5	5
Miscellaneous (Water supply)	Diesel pump	25 HP	1	5	6
	Diesel pump	30 HP	1	2	3
	Electric pump	30 HP	1	2	3

3. No change in mining technology and scope of working shall be made without prior approval of the Board.

4. Top soil should be stacked properly with proper slope at earmarked site(s) with adequate measures and shall be used for reclamation and rehabilitation of mined out areas.

5. Concurrent back-filling should be started from the fourth year of operation. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests with a copy to the Board on yearly basis.

6. Dimension of the retaining wall at the toe of dumps and Ob benches within the mine to check run-off and siltation shall be based on the rainfall data. The detail specification shall be worked out and submitted to the Board.

7. A green belt of adequate width shall be raised for suppression of dust by planting the native species around to ML area, roads, OB dump sites, etc., in consultation with the local DFO/Agriculture Department.

8. Reclamation programme along with the post closure plan is to be submitted within 06 months from the date of issue of this order.

9. Catch drains, and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The drains should be regularly de-silted and maintained properly. The garland drains (size, gradient and length) and sump capacity should be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material.

10. Regular monitoring of ground water level and quality should be carried out by establishing a net work of existing wells. The monitoring should be done four times a year in pre-monsoon (April/May), Monsoon (August), Post-monsoon(November) and winter (January) seasons. Data thus collected should be submitted to the Board quarterly. Following heavy metals need to be monitored at least once during post monsoon period whose values shall not exceed as per following standard.

i)	Cd	-	2.0 mg/l
ii)	Cr+6	-	0.10 mg/l
iii)	Copper	-	3.0 mg/l
iv)	Lead	-	0.10 mg/l
v)	Mercury	-	0.01 mg/l
vi)	Nickel	-	0.50 mg/l
vii)	Zinc	-	5.0 mg/l

11. Sewage treatment plant should be installed for the treatment of domestic effluent generated from the colony and mines so as to meet the prescribed standard of the Board for discharge to inland surface water.

12. Wastewater (workshop, wastewater from the mine i.e. pit water, check dams or any other discharge leaving lease boundary of the mine) should be properly collected, treated so as to conform the prescribed standard i.e pH = 6 – 9.0, SS = 50 mg/l, & O & G = 5 mg/l and dissolved iron as Fe – 2 mg/l or as amended from

time to time. Oil and grease trap should be installed before discharge of effluents from workshop. Domestic effluent shall be discharged to soak pit via septic tank.

13. Mine drainage water, if any has to be treated and disposed of after conforming to the standard prescribed by the Board i.e pH – 6 – 9.0, Total SS = 50 mg/l & O & G = 5 mg/l and Dissolved iron as Fe – 2 mg/l.

14. Drill should be wet operated or with dust extractors and controlled blasting should be practices.

15. Six ambient air quality monitoring stations for 24 hours operation should be established in the core zone as well as in the buffer zone for RPM, SPM, SO_2, NOx and CO monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board (i) Data on ambient air quality (RPM, SPM, SO_2, NOx and CO) should be regularly submitted to the State Pollution Control Board once in six months.

16. Adequate measures to control fugitive emission shall be taken during loading and transportation of minerals, haul roads, drilling, excavation, ore stack pile and truck loading areas.

17. The haulage roads and arterial roads shall be made black topped / concrete with avenue plantation. Appropriate plan to this effect shall be submitted to the board within a month. Initially 50% of haul road shall be black topped/concrete surfaced. The speed of dumpers / trucks on haul roads shall be controlled as increased speed increases dust emission. Overloading of transport vehicles shall be avoided .

18. Drilling operation need to be conducted as per the recommendations of the manufacturer using sharp drill bits. Applying sufficient thrust on the drill bit and providing dust hood at the mouth of drill hole collar to prevent the generation of dust to be air-borne.

19. The operator's cabin in the drills shall be provided with dust proof enclosure and the persons working at high dust prone areas shall be provided with dust mask.

20. Conditioning of the ore with water (7.5 – 9.5%) can be practiced as a primary method to minimize the dust emissions without affecting flow of ore in the ore processing and handling areas.

21. Air blast level resulting from blasting on any premises or public place must not exceed 90 dB linear, peak at any other premises outside the period between 7 AM and 6 PM on any day.

22. Pre-wetting of Blasting site shall be practiced.

23. Avoid Blasting when temperature inversion is likely to occur and strong wind blows towards the residential areas.

24. Use site specific scientific blast design using modern software.

25. Optimized blasting methods shall be practiced i.e matching the explosive to the drilling pattern, rock characteristics and proper stemming of the holes.

26. Site specific drilling pattern, optimum charging of explosives, adequate stemming and introduction of delays shall be practiced.

27. During transportation of ore by trucks through public roads, the truck shall be properly covered with tarpaulin sheets / leak proof coverings and shall ply at safe speed.

28. Dust suppression on mine haul roads, active OB dumps and mine working benches shall be done by spraying water through water sprinklers along with chemical binders/wetting agents at frequent interval in order to reduce water consumption and to improve retention and re-absorption capacity of water. The additive chemicals should not have any adverse impact on the environment. Water sprinklers of fixed type shall also be provided at the mine HEMM maintenance shop, other service centers and approach roads from mines to crusher hopper to prevent the generation of dust to be air borne.

29. Regular collection of spilled over raw material from haul roads shall be practiced to prevent the generation of dust due to movement of dumpers /truck.

30. At stockpile and loading plant area, a net work of drains with concrete bottom shall be constructed at a depth of 1.5 meter below the lowest level on the sites parallel to the stockpile area with interconnected box culverts. The sloping of surface shall be given inward to the stockpiles so that surface water will only infiltrate in to the drain.

31. To arrest the slimes/suspended solid fine particles flowing through the streams a no. of check dams shall be constructed across the original course of the stream along with wire mesh and boulders. De-silting of check dams shall be done at regular interval during non-monsoon period.

32. Sedimentation ponds shall be constructed at strategic points in order to guide all surface run-off water containing sediments for settlement of suspended solids before discharge of water in to natural stream/water courses during monsoon.

33. Riverine afforestation shall be practiced to prevent soil erosion during monsoon.

34. Noise is best abated at source by selecting right machinery and equipment by proper mounting of equipment by providing noise insulating enclosures or padding as far as possible.

35. Noise barriers shall be constructed between sources and affected areas (thick belt of trees around mine boundaries, waste dumps, hills and mountainous land forms can act as such barrier).

36. Safety fuse shall be covered with sand layer of 15 cm thick in order to reduce noise level during blasting operation.

37. Occupational exposure limit of noise limit for ground vibration at the foundation level and permissible peak particle velocity (PPV) at the foundation level of structures in the mining areas as specified by DGMS shall be complied with by the iron ore mines.

38. Adequate measures shall be taken for control of noise levels in the work environment of mine area so that noise levels at the boundary line of M.L area shall not exceed 75 dB(A) during day time (6 AM to 10 AM) and 70 dB(A) during night time (10, PM to 6 AM).

39. The top soil (20-30 cm) shall be removed separately utilize for restoration or rehabilitation of land or store it in a separate heap for future use duly covered with gross and vegetal cover to preserve its fertility / biomass.

40. Overburden/waste rock should be back filled into main excavations to the maximum extent possible in order to restore the land.

41. The waste dumps shall be located away from the natural nalls, rivers in the area and on an impervious & non-mineralised area to minimize the water pollution.

42. The OB/waste dumps shall be properly dressed benched stopped at low angle with terracing and bamboo barricades in the slopes making retaining walls stone barriers at the toe of the dumps gully plugging etc to prevent the solid erosion during monsoon, besides establishing vegetation on dump top as well as its slope surface. In difficult cases, hydro-seedling technique or use of geo-tiles mat embedded with seeds shall be adopted.

43. The completed out slope of the waste dumps should not exceed 20 degress from horizontal to avoid excessive erosion and easy vegetation.

44. Project authority shall undertake sample survey to generate data on pre-project community health status within a radius of 1 km. from proposed mine. The report shall be submitted within 06 months from the date of issue of this order.

45. Consent to operate shall be obtained from this Board before commencing the mining activities of proposed expansion project.

46. Environmental laboratory should be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.

47. The mine shall provide bagfilter as well as dry fog system at potential dust generating points of iron ore crusher and screening plants at hill top and down hill.

48. The particulate matter emission in the stack attached to dedusting system shall not exceed 100 mg/Nm3.

49. The mine shall provide dry fog system at crusher hopper during unloading operation and at iron ore stock yard and fines stock yard.

50. The mine shall provide hoods at transfer points, chutes shall be properly designed and vulcanizing of conveyor belt joints to control fugitive emission.

51. The ore right from primary crusher to secondary crusher and screening plant, and for further processing shall be carried out through a system of closed conveyor belts in order to control the dust generation during transportation of iron ore from one place to another.

52. A separate environmental management cell with suitable qualified personnel should be set up under the control of a Senior Executive, who will report directly to the Head of the organization.

53. Mining plan for conventional mining activity do not show North as per standard convention. This shall be modified in the maps.

54. Overall quarry slope as mentioned in the report is 60°C. It shall be conform to DGMS guidelines and slope to be maintained as per approved mining plan.

55. OB dump heights of 50/20 mts as proposed is very high. This shall be decided after due dump stability study taking into account the earth quake proneness if any.

56. Adequate no. of equipment/machineries shall be deployed as no. of equipment mentioned in the report appears to be less. Further equipment proposed for flank ore body can not deal with 10 mt high benches. Benches in flank ore carry shall be redesigned.

57. Iron content in the ground water is high so the mine shall take appropriate measures to make water portable.

58. The mine shall take appropriate measures for higher micronutrients in the soil.

59. The mine shall plan back filling of mined out area more effectively and same shall be implemented concurrent back fill to be attempted wherever practicable so that external dump area could be reduced substantial.

60. The relative water flow pattern at various stages of mining to be planned and depicted.

61. For modeling FDE control drying up of unconsolidated spread soil at dumps shall be taken into consideration.

62. Site and quantity specific reclaimation plans shall be depicted.

63. Cost details for environmental management to be updated to year 2007 base.

64. The details of medicinal plant exist if any in the Gandharmardan shall be mentioned in the EIA report.

65. Socio economic expenditure shall be incorporated in the report.

66. The above conditions will be enforced, inter-allia, under the provisions of the water (Prevention & Control of pollution)Act, 1974 and Air(Prevention & Control of Prevention)Act. 1981 and Environment(Protection)Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rule.

67. All efforts shall be taken to protect the existing water bodies in the surrounding. A definite plan in this regard shall be submitted to the Board within 06 month from the date of issue of this order.

68. This consent to establish is granted subject to grant of Explosive License from competent Authority. The valid Explosive License must be submitted to this Board while applying for consent to operate to this Board.

69. The Board may impose further conditions or modify the conditions stipulated in this order during installation and/or at the time of obtaining consent to operate and may revoke this clearance in case the stipulated conditions are not implemented.

70. The mine shall abide by all the provisions of Environment (Protection) Act, 1986 and rules framed thereunder.

71. The mine shall obtain forest clearance under Forest (Conservation) Act. 1980 if there is involvement of forest land in the mining lease area.

72. The mine shall submit modified Environmental Management Plan incorporating the comments of technical committee within 2 months from date of issue of this order.

24/04/08

MEMBER SECRETARY

To,

Sri Janardan Misra, Deputy General Manager (Geo),
M/s. Gandhamardan 'B' Iron ore Mine
of the Orissa Mining Corporation Ltd
OMC House, PO Box No. 34, Bhubaneswar – 751001

Memo No. 11213 /Dt. 24/4/08

Copy forwarded to :

1. Secretary Steels & Mines , Govt. of Orissa, Bhubaneswar
2. Collector, Keonjhar
3. District Industries Centre, Keonjhar
4. Sr. Env. Engineer (C),
5. Director, Factories & Boiler, Bhubaneswar
6. Regional Officer, O.S.P.C.Board, Keonjhar
7. DFO, Keonjhar.
8. Copy to Guard file

29/4/08

SR. ENV. ENGINEER (N)