

**KOIRA IRON ORE MINE
OF M/S ESSEL MINING & INDUSTRIES LTD.**

**Status of Compliance to Conditions for Environment Clearance stipulated by MoEF in
Letter No J-11015/599/2007-IA, II(M), dated 24th Sep.2008 for production capacity of 1.5 MTPA.**

(For the period from April 2011 to September 2011)

Sr. No.	Special Condition	Compliance Status as on 31.09.2011
i	The project proponent shall obtain Consent to Establish from the State Pollution Control Board, Orissa and effectively implement all the conditions stipulated therein.	Consent to Establish has been obtained from the State Pollution Control Board for production capacity of 1.5 MTPA vide letter no.-9171/IND-II-NOC-4251 dated 16.04.08 and all the conditions are being implemented.
ii	Environmental clearance is subject to grant of forestry clearance. Necessary forestry clearance under the Forest (Conservation) Act, 1980 for an area of 59.458ha forestland involved in the project shall be obtained before starting mining operation in that area. No mining will be undertaken in the forest area without obtaining requisite prior forestry clearance.	Stage-I forest clearance has been obtained from MoEF on 2 nd February 2011 vide letter no:- 8-102 / 2010-FC. under F.C. Act, 1980 for an area of 59.458ha forestland involved in the project.
iii	The mining operations shall be restricted to above ground water table and it should not intersect groundwater table. In case of working below ground water table, prior approval of the Ministry of Environment and Forests and Central Ground Water Authority shall be obtained, for which a detailed hydro-geological study shall be carried out.	Presently mining is not intersecting the ground water. Necessary Approval will be taken from the MoEF and CGWA prior to work below ground water table.
iv	The project proponent shall ensure that no natural watercourse and/or water resources are obstructed due to any mining operations.	No river / nala is passing through the ML area and Mining activities will be confined within the ML area. So natural watercourse and/or water resources are not obstructed.
v	The top soil, if any, shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation.	During mining operation generated topsoil is being stacked and used for plantation purpose.
vi	The over burden (OB) generated during the mining operations shall be stacked at earmarked dump site(s) only and should not be kept active for long period of time. No new external OB dumps shall be created and the temporary dumps shall be re-handled. Backfilling shall start from the 4th year onwards and there shall be two external OB dumps at the end of the mine life in an area of 6.372ha. Proper terracing of OB dumps should be carried out so that the overall slope of dumps shall not exceed 28 ^o . The OB dumps should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles shall be undertaken for stabilization of the dumps. Out of the total excavated area of 61.149ha, an area of 54.169 ha shall be backfilled and	In course of mining operation the generated overburden are being stacked in earmarked area in a retreating method. Retaining walls has been made at the toe of the dumps. Routing and terracing are being maintained. Garland drains are made and being cleaned regularly for desiltation. The accumulated water in the garland drains is being passed through settling tanks/sedimentation ponds, which are constructed depending upon the contours to allow the silt to settle before final discharge. Small grasses are planted in the drains to hold back the solid particles from drained away. Geo-textiles are used

	afforested. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.	in the terraces of OB dump for stabilization. Plantation is being done on the dump terraces/slope for dump stabilization.
vii	Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, soil, mineral and OB dumps to prevent run off of water and flow of sediments directly into the Karo Nallah and other water bodies. The water so collected shall be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted, particularly after monsoon, and maintained properly. Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed around the mine pit, topsoil dump and over burden dumps to prevent run off of water and flow of sediments directly into the Karo Nallah and other water bodies and sump capacity shall be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity shall also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.	Existing catch drain and garland drain are being extended to cover the entire dumps. Size, gradient and length of the drains are being made to take care of the peak flow. Siltation ponds are constructed depending upon the contours to allow the silt to settle before final discharge. Siltation ponds and drains are being cleaned periodically.
viii	Dimension of the retaining wall at the toe of OB dumps and over burden benches within the mine to check run-off and siltation shall be based on the rain fall data.	Dimension of the retaining wall at the toe of OB dumps and over burden benches and Siltation ponds are being constructed based on the rain fall data.
ix	Plantation shall be raised in an area of 75.12ha including a 7.5m wide green belt in the safety zone around the mining lease, backfilled and reclaimed area, over burden dumps, quarry benches, roads etc. by planting the native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per ha.	8.763 Ha area is covered under plantation in dumps & 7.5m wide green belt in the safety zone of the lease. Density of the plants is being maintained around 2500 plants. Local species are being planted.
x	Regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of SPM and RSPM such as around crushing and screening plant, loading and unloading point and transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	Regular water sprinkling is being carried out to suppress fugitive dusts from haul roads, around the screening & crushing plants, loading & unloading points, all transfer points. Ambient Air Quality parameters are maintained as per the norms prescribed by Central Pollution Control Board.
xi	Regular monitoring of the flow rate of the springs and perennial nallahs in and around the mine shall be carried out and records maintained.	Regular monitoring of the flow rate of the perennial nallahs are being carried out and records are being maintained.
xii	Regular monitoring of water quality upstream and downstream of Karo nallah and another perennial	Monitoring of water quality of Upstream and downstream of Karo nallah and Koira nallah are

	nallah shall be carried out and record of monitored data should be maintained and submitted to Ministry of Environment and Forests, its Regional Office, Bhubneswar, Central Groundwater Authority, Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board.	being carried out on quarterly basis and record of monitoring data is being maintained and submitted to Ministry of Environment and Forests, its Regional Office, Bhubaneswar, Central Groundwater Authority, Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board.
xiii	The project authority shall implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	Suitable conservation measures to augment ground water resources are being taken in the area in consultation with the Regional Director, Central Ground Water Board.
xiv	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out four times in a year? pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected shall be sent regularly to Ministry of Environment and Forests and its Regional Office, Bhubaneswar, Central Ground Water Authority and Regional Director, Central Ground Water Board.	Regular monitoring of ground water level and quality is being carried out in the existing wells in around the ML area. The monitoring is carried out four times in a year and the data thus collected is being sent regularly to MOEF, Central Ground Water Authority and Regional Director Central Ground Water Board.
xv	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with Regional Director, Central Ground Water Board.	Suitable water conservation measures are already taken to recharge to the ground water resources in the area. We have engaged KRG Rain Water Foundation, Chennai, a reputed consultant for preparation of detailed Technical Feasibility Report on site-specific rain water harvesting techniques. It has also been planned to locate suitable recharge structures at the site. The detail information on withdrawal of ground water for mining uses and adopting rain water harvesting measures at Koira Iron Mines has submitted to Regional Director, Central Ground water Board, Bhubaneswar.
xvi	Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The mineral transportation shall be carried out through covered trucks only and the vehicles carrying the mineral shall not be overloaded.	Vehicular emissions are being kept under control. Measures are being taken for maintenance of vehicles in mining operations. Transportation of mineral is being carried out by third party. Tarpaulin is being covered on the loaded trucks and the loading of ore is done as per Govt norms.
xvii	Blasting operation shall be carried out only during the daytime. Controlled blasting shall be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.	Controlled blasting is being practiced during daytime.
xviii	Drills shall either be operated with dust extractors or equipped with water injection system.	Wet drilling is being carried out.

xix	Mineral handling plant shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.	Mineral handling plant are provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points are installed with dust control arrangements. Regular maintenance is being carried out.
xx	Consent to operate shall be obtained from the State Pollution Control Board prior to start of enhanced production from the mine.	Consent to Operate has been obtained from the State Pollution Control Board for production capacity of 1.5 MTPA vide letter no.-2373/IND-I-CON-1798 dated 19.02.09.
xxi	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for workshop and wastewater generated during mining operation.	Necessary Sewage treatment plant will be installed after setting up of colony. Presently no work shop effluent is generated from the mine site as contract vendors are engaged for transportation.
xxii	The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna namely Asiatic elephant, tiger, python, Indian wolf etc. spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. All the safeguard measures brought out in the Wildlife Conservation Plan so prepared specific to the project site shall be effectively implemented. A copy of action plan shall be submitted to the Ministry of Environment and Forests and its Regional Office, Bhubaneswar.	Wildlife conservation plan for protection of endangered flora and fauna found in the study area is prepared in consultation with the State Forest Department & submitted. Necessary funds will be deposited for implementation of the conservation plan on demand of Divisional Forest Officer, Bonai, Sundergarh, Odisha.
xxiii	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Necessary facilities have been provided to the labour for basic amonites.
xxiv	A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	A Final Mine Closure Plan along with details of Corpus Fund will be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.

Sr. No.	General Condition	Action Taken
i	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	Necessary permission will be taken from MoEF if any changes in mining technology during mining operation.
ii	No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.	Excavation schedule is being followed as per approved Mining Plan.
iii	Atleast four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM, SPM, SO ₂ & NO _x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	Ambient air quality monitoring is being carried out in core & buffer zone.
iv	Data on ambient air quality (RSPM, SPM, SO ₂ & NO _x) should be regularly submitted to the Ministry including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.	Ambient air quality monitoring is being carried out in core & buffer zone and the results is submitted to the Ministry's Regional Office at Bhubaneswar and State Pollution Control Board/Central Pollution Control Board.
v	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Fugitive dust is being controlled by water sprinkling on haul roads, loading, unloading and at transfer points.
vi	Measures should be taken for control of noise levels below 85 dba in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.	Personal Protective Equipments are provided to the workers working in the high noise level areas.
vii	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	The central workshop is located at Jilling Mine of Essel Mining & Industries limited. Minor repairing were done in nearby garage outside the leasehold area. We have obtained the authorization for hazardous waste from SPCB, Bhubaneswar.
viii	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	Dust masks are provided to workers. Time to time training is given on safety and health aspect. Periodically Occupational Health Surveillance programmes are undertaken in mines as per the norms.
ix	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.	The environment monitoring is being conducted by M/S B.S. Consultant Private limited, Hyderabad in 24 hrs basis under our supervision.

x	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.	Account of expenditure for Environmental protection is maintained separately and are spent only for environment related purposes. Year wise expenditure is being submitted to MoEF's Regional Office located at Bhubaneswar.
xi	The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Presently it is not Applicable.
xii	The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	Full support & co-operation are being continued to the MoEF officers during mining inspection by furnishing the requisite data/ information/ monitoring reports.
xiii	The project proponent shall submit six monthly report on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Bhubaneswar, Central Pollution Control Board and State Pollution Control Board.	Complied with.
xiv	A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.	Complied with.
xv	State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector`s office/ Tehsildar`s Office for 30 days.	Complied with.
xvi	The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubaneswar.	Complied with.