OMC | ODISHA NEW OPPORTUNITIES

Letter No. 7239 .....OMC/F&E/2017
May 20, 2017
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To

The Director(S)
Ministry of Environment, Forests & Climate Change
Eastern Regional Office
A/3, Chandrashekharpur,
Bhubaneswar-751 023

Sub.: Submission of six monthly report on the status of compliance to the stipulated EC conditions along-with the monitored data pertaining to **Gandhamardan 'A' Iron Ore Mines** of OMC Ltd.

Ref.: i) EC Grant Order No. J-11015/1088/2007-IA.II(M) dt. 16.01.2009
ii) MoEF Circular No. J-11013/41/2006-IA.II(I) dt. 30.06.2009

Sir,

Six monthly reports on the status of compliance to EC conditions stipulated by MoEF, Govt. of India under reference (i) pertaining to Gandhamardan-A Iron Ore Mine for the period from Oct' 2016 - Mar' 2017 is enclosed as **Annexure-A** for kind perusal.

The environmental monitoring data (Oct' 2016 - Mar' 2017) comprising of air (ambient & fugitive), noise, water (ground & surface), waste water and soil for the above mentioned period is enclosed herewith as **Annexure-B**.

This is for your kind information and necessary action.

Encl.: As above (with a CD)

Yours faithfully,

Executive Director (F&E)

No...../OMC/F&E/2017

May 20, 2017

Copy to:
1. Copy alongwith copies of enclosures (in hard & soft) to Director (IA), Ministry of Environment, Forest & Climate Change, Government of India, 3rd Floor, Vayu Vihar, Indira Paryavaran Bhawan Jorbagh Road, Aliganj New Delhi – 110 003
2. Member Secretary, Central Pollution Control Board, Zonal Office, Kolkata
3. Member Secretary, SPCB, Odisha, Bhubaneswar-751 012
4. Regional Manager, Gandhamardan, for kind information & necessary action.

Executive Director (F&E)

Odisha Mining Corporation Ltd.
(A Gold Category State PSU)
Registered Office : OMC House, Bhubaneswar-751001, India
Tel: 0674-2377400/2377401, Fax: 0674-2396889, 2391629, www.omcltd.in

ANNEXURE - A

COMPLIANCE TO THE CONDITIONS STIPULATED IN THE GRANT ORDER OF ENVIRONMENTAL CLEARANCE GRANTED BY MOEF, GOVT.OF INDIA VIDE LETTER NO.J-11015/1088/2007-IA.II(M) DT 16.01.2009 PERTAINING TO GANDHAMARDAN BLOCK-A IRON ORE MINES OF M/S ODISHA MINING CORPORATION LIMITED

Sl. No.	Conditions stipulated	Status of Compliance by OMC
1	All the conditions stipulated by the State Pollution Control Board, Odisha in their Consent to Establish shall be effectively implemented.	Consent to establish has been granted by the State Pollution Control Board, Odisha vide letter No. 15874/ IND-II- NOC- 4426 dt 04.07.2007. The conditions stipulated therein are being implemented.
2	Environmental clearance is subject to grant of forestry clearance. Necessary forestry clearance under the Forest (Conservation) Act, 1980 for an area of 519.7472ha forestland involved in the project shall be obtained before starting mining operation in that area. No mining shall be undertaken in the forest area without obtaining requisite prior forestry clearance.	Mine is not operating due to want of Forest Clearance. Stage-II FC over 41.4221ha has been granted by MoEF & CC, Govt. of India vide letter dt. 24.04.2017. The forest diversion proposal for balance forest area over 401.7824 ha has also been applied by OMC on dt. 03.06.2015. The proposal is at MoEF&CC, Govt. of India.
3	The environmental clearance is subject to approval of the State Land use Department, Government of Odisha for diversion of agricultural land for non-agricultural use	No agricultural land shall be diverted for use against this project. Hence approval of the State Land use Department, Govt. of Odisha may not be required.
4	The project proponent shall develop fodder plots in the non-mineralized area in lieu of the use of the grazing land.	No grazing land shall be used for this project and kept untouched.
5	The project proponent shall effectively address the concerns raised by the locals in the public hearing as well as during consideration of this project, while implementing this project	This shall be taken care of once the mine is operative.
6	The mining operations shall be restricted to above ground water table and it should not intersect the groundwater table. In case of working below the ground water table, prior approval of the Ministry of Environment and Forests and the Central Ground Water Authority shall be obtained, for which a	The mining operations are restricted to above ground water table. Iron ore does not continue below ground water table for which mining operation will never intersect the GW table. However if such case arises in future, OMC will seek approval of CGWA.

	detailed hydro-geological study shall be carried out.	
7	The project proponent shall ensure that no natural watercourse and/or water resources are obstructed due to any mining operations. Adequate measures shall be taken while diverting all the three, fourth order seasonal streams, namely Id1, Id2 and Id3 emanating from the mine lease, during the course of mining operation.	No natural watercourse or water resources are obstructed. Diversion of seasonal streams is not felt necessary so far.
8	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.	The top soil generated during operation in the virgin forest land will be utilized for plantation after getting approval from MOEF.
9	The existing over burden (OB) and the likely to be generated over burden during the course of mining shall be re-handled and backfilled. Backfilling shall start from the year 2010 and the entire quantity of the waste to be generated shall be backfilled. There shall be no external over burden dumps. Out of the total 150.2407ha excavated area, an area of 35.54 ha shall be backfilled and an area of 114.7007 ha shall be left as void, in which bench plantation should be carried out. The backfilled area shall be 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.	The mining operation could not be carried out due to want of Forest Clearance over the virgin forest land. Hence backfilling could not be started from 2010. As soon as the Forest clearance is granted the mining operation will be carried to the target level and the OB to be generated during the operation shall be backfilled in the abandoned area as per the approved mining plan issued by Indian Bureau of Mines and no external dump shall be formed. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.
10	Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, mineral and temporary OB dumps to prevent run off of water and flow of sediments directly into the Chamda Nallah, the Baitarni River, the Bamni Nadi and other water bodies. The water so	Garland drains, settling tanks and check dams of appropriate size, gradient and length have been constructed and maintained regularly to control water pollution. The water collected from the settling tank is used for dust suppression purpose.

	collected shall be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted, particularly after the 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, temporary over burden dumps and mineral dumps to prevent run off of water and flow of sediments directly into the Chamda Nallah, the Baitarni River, the Bamni Nadi 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.	
11	Dimension of the retaining wall at the toe of temporary OB dumps and the over burden benches within the mine to check run-off and siltation shall be based on the rain fall data.	It has been designed accordingly.
12	Plantation shall be raised in an area of 165.417ha including a 7.5m wide green belt in the safety zone around the mining lease, backfilled and reclaimed area, quarry benches, around crusher, 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.	Plantation in 7.5 m strip all along the ML boundary in the forest land shall be raised by OMC after obtaining Forest clearance for entire forest area. Plantation in quarry benches, backfilled and reclaimed area shall be taken up by OMC as per the reclamation schedule approved by IBM after the mineral is exhausted.
13	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,	Regular water sprinkling will be done in and around loading point, unloading point, transfer points and on haul roads. Environmental monitoring is being carried out.

	loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard	
14	Regular monitoring of the flow rate of the springs and the perennial nallahs shall be carried out and records maintained.	Regular monitoring of the flow rate of the springs and the perennial nallahs nearby is done and the monthly monitoring report is being displayed in our web site: www.orissamining.com.
15	Regular monitoring of water quality upstream and downstream of the Chamda Nallah shall be carried out and record of monitored data should be maintained and submitted to the Ministry of Environment and Forests, its Regional Office, Bhubneswar, the Central Groundwater Authority, the Regional Director, Central Ground Water Board, the State Pollution Control Board and the Central Pollution Control Board.	Regular monitoring of water quality upstream and downstream of Chamda Nallah is being carried out and the monthly monitoring report is being displayed in our web site: www.orissamining.com.
16	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.	The report incorporating implementation of suitable conservation measures to augment ground water resources generated has been submitted to CGWB for vetting and accordingly the recommendations proposed by the Board will be executed/implemented at the site.
17	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 the Ministry of Environment and Forests and its Regional Office, Bhubaneswar, the Central Ground Water Authority and the Regional Director, Central	Regular monitoring of ground water level is carried out on quarterly basis and the monthly monitoring report is being displayed in our web site: www.orissamining.com.

	Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out.	
18	Appropriate mitigative measures shall be taken to prevent pollution of the Baitarni River and the Bamni Nadi in consultation with the State Pollution Control Board.	Check dams across the seasonal streams arising from the ML area have been constructed and utmost care is taken to prevent any waste water discharge to the nearby water body.
19	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of water (surface water and ground water, if any) required for the project.	Application submitted before Commissioner-cum-Secretary, Dept. of Water Resources, Govt. of Odisha on dtd 10.10.2011 to grant permission for drawl of 354 m^3/day of water is under process. Secretary S&M has recommended the quantum of water required for the project. OMC is anticipating the grant of permission for the same very soon.
20	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.	Compliance same as Condition No. 16
21	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 the covered trucks only and the vehicles carrying the mineral shall not be overloaded. No transportation of ore outside the mine lease area shall be carried out after the sunset.	Monitoring of vehicular emission of machineries used in transportation of ore is carried out to mitigate environmental pollution. The mineral transportation is carried out through covered trucks and the vehicles carrying the mineral are not over loaded. Transportation of ore outside the mine lease area is being carried out before the sunset.
22	No blasting shall be carried out after the sunset. 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.	As there is no mining operation for the want of forest clearance so no blasting operation is being carried out at present. Therefore no mitigative measures for controlling of ground vibration as well as to arrest fly rock is needed.
23	Drills shall either be operated with dust extractors or equipped with	No drilling operation is being carried out as there is no mining operation for the

	water injection system.	want of forest clearance.
24	Mineral handling area 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.	There is no mineral handling plant at present. Regular water sprinkling is being carried out in haul roads and the same will be carried out in and around the loading and unloading point, transfer points when the mine shall be in operation.
25	Consent to operate shall be obtained from the State Pollution Control Board prior to start of enhanced production from the mine.	Consent to operate will be obtained from the State Pollution Control Board prior to start of enhanced production from the mine.
26	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and wastewater generated during the mining operation.	The waste water generated from the colony is sent to the soak pit through the septic tank.
27	Digital processing of the entire lease area using remote sensing technique shall be carried out regularly once in three years for monitoring land use pattern and report submitted to the Ministry of Environment and Forests and its Regional Office, Bhubaneswar.	The digital processing of the entire lease area for the monitoring of land use pattern has been prepared by ORSAC, Dept. of Science & Technology, Govt. of Odisha. The copy of the same is enclosed herewith as **Plate – I.**
28	Land oustees and land losers/affected people, if any, shall be compensated and rehabilitated as per the National Policy on Resettlement and Rehabilitation of Project Affected Families.	No person is displaced due to this project and there is no proposal for any displacement in future. No person has lost their land and affected by this project so far.
29	Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.	Pre-placement medical examination and periodical medical examination of the workers engaged in the project are being carried out and records maintained.
30	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	No construction activity is being carried out. The project is already in existing condition.

	removed after the completion of the project.	
31	The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna namely elephant 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.	The prescriptions approved by Wildlife Institute of India , Dehradun and PCCF (WL) in the Site Specific Wildlife conservation plan of Gandhamardan-A in the core zone is implemented. OMC has deposited Rs 516.69 lakhs towards the approved activities to be taken up by the DFO, Keonjhar in the zone of influence (10km radius) to be completed within 10 years of operation.
32	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.	Shall be complied before closure.
B.	**GENERAL CONDITIONS**	
1	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	There is no change in the mining technology.
2	No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.	The same shall be complied subsequent to commencement of Mining operation.
3	At least four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM, SPM, SO2 & NOx 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	Ambient air quality-monitoring at six different locations is carried out and recorded regularly as per CPCB norm and the monthly monitoring report is being displayed in our web site: www.orissamining.com.

	undertaken in consultation with the State Pollution Control Board.	
4	Data on ambient air quality (RSPM, SPM, SO2 & NOx) should be regularly submitted to the Ministry of Environment and Forests including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.	Six monthly data on AAQ is submitted to the Ministry including its Regional office located at Bhubaneswar and the State Pollution Control Board and the report is displayed in the web site: www.orissamining.com.
5	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.	Complied.
6	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.	Noise level is maintained below 85 dBA. Workers engaged are provided with adequate safety equipments.
7	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.	There is no waste water generation from the mine except surface run off during monsoon for which garland drain, check dams and boulder walls has been constructed to check the water pollution. There is no work shop at present in the ML area.
8	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.	Personnel working in dusty areas wear protective respiratory devices and they are also being provided with adequate training and information on safety and health aspects in OMC Vocational Training Centre.
9	A separate environmental management cell with suitable qualified personnel should be set-up	There is a common Environmental management cell for Gandhamardan-A & B formed under the control of a

	under the control of a Senior Executive, who will report directly to the Head of the Organization.	Senior Executive, because both the mines are adjacent to each other.
10	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 of Environment and Forests and its Regional Office located at Bhubaneswar.	Complied. The year wise expenditure is attached herewith as **Annexure-1.**
11	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.	It will be intimated before closure.
12	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.	OMC renders all support and co-operation during inspection by the officer (s) of the Regional Office.
13	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.
14	A copy of clearance letter shall be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.	Complied.
15	The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the Collector`s office/ Tahasildar`s Office for 30 days.	Complied
16	The project authorities should advertise at least in two local	Complied.

	newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7days 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 at Bhubaneswar.	

Annexure – I

HALF-YEARLY EXPENDITURE FOR ENVIRONMENTAL PROTECTION MEASURES PERTAINING TO GANDHAMARDAN-A IRON ORE MINES

ACTIVITIES	EXPENDITURE (From October – 2016 to March – 2017)	REMARKS
Pollution Control	Rs. 7,10,000.00	Towards dust suppression arrangements all around the quarry area and haul roads & supply of drinking water by water tankers in Gandhamardan A & B.
Pollution Monitoring	Rs. 2,45,000.00	Monitoring of EC parameters
Occupational Safety	Rs. 1,88,100.00	Towards Initial Medical Checkup, Periodical Medical Check-up, medical health unit at near villages & medical treatment cost of the employees of Gandhamardan A & B Mines.
Socio-economic welfare & CSR measures in nearby villages	Rs.1,02,10,000.00	Towards peripheral development work for both Gandhamardan A & B.

ANNEXURE-B

Environmental Monitoring Report - Gandhamardan A Iron Ore Mine of M/s Odisha Mining Corporation Limited during the period (October 2016 to March 2017)

1. *Ambient Air Quality*

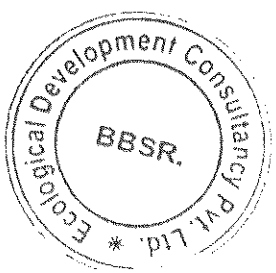
Sl.No	Location	Month	Concentration	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)
1.	Suakati School Lat. : 21°36'28.44"N Long.: 85°30'55.32"E	October'16	03.10.2016	Monitoring has not been done due to rain.				
			05.10.2016					
			12.10.2016	48	17	5.2	9.6	BDL
			17.10.2016	64	26	6.5	11.6	BDL
			19.10.2016	72	31	5.7	10.8	BDL
			24.10.2016	68	29	5.0	13.1	BDL
			26.10.2016	62	23	6.2	11.2	BDL
		November'16	01.11.2016	Monitoring has not been done due to rain				
			03.11.2016	51	23	4.9	9.7	BDL
			07.11.2016	59	27	5.7	11.4	BDL
			09.11.2016	57	26	BDL	10.1	BDL
			14.11.2016	60	29	6.5	11.8	BDL
			16.11.2016	65	31	BDL	10.5	BDL
			21.11.2016	71	30	7.9	13.8	BDL
			23.11.2016	75	35	6.8	12.6	BDL
			28.11.2016	52	23	4.9	BDL	BDL
			30.11.2016	49	19	BDL	9.5	BDL
		December'16	01.12.2016	65	23	5.8	14.6	BDL
			05.12.2016	74	32	6.7	15.1	BDL
			07.12.2016	79	40	7.7	15.8	BDL
			12.12.2016	62	28	5.4	12.7	BDL
			14.12.2016	71	33	6.5	13.6	BDL
			19.12.2016	64	30	5.9	12.9	BDL
			21.12.2016	60	24	5.5	11.3	BDL
			26.12.2016	58	23	5.6	10.5	BDL
			28.12.2016	72	29	6.1	11.5	BDL
		January'17	02.01.2017	75	34	6.3	12.8	BDL
			04.01.2017	68	31	5.7	14.8	BDL
			09.01.2017	62	27	5.4	11.9	BDL
			11.01.2017	55	25	5.0	11.8	BDL
			16.01.2017	62	27	5.9	12.4	BDL
			18.01.2017	63	26	5.6	12.1	BDL
			23.01.2017	59	25	5.3	11.6	BDL
			25.01.2017	72	34	7.2	13.2	BDL
			30.01.2017	54	20	5.3	10.5	BDL
		February'17	02.02.2017	64	27	5.3	11.9	BDL
			06.02.2017	72	30	6.6	13.3	BDL
			09.02.2017	58	25	5.2	10.8	BDL

Ecological Development Consultancy Pvt. Ltd. BBSR.

Sd/-(C&E)

7/4/17

Sl.No	Location	Month	Concentration	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)
			13.02.2017	55	23	5.3	11.4	BDL
			16.02.2017	71	33	6.5	12.5	BDL
			20.02.2017	60	26	5.7	13.8	BDL
			23.02.2017	67	32	6.3	12.1	BDL
			27.02.2017	75	35	5.9	14.2	BDL
		March´17	02.03.2017	72	23	8.1	12.5	BDL
			06.03.2017	80	35	7.3	15.8	BDL
			09.03.2017	58	19	5.7	13.6	BDL
			14.03.2017	66	22	5.9	12.1	BDL
			17.03.2017	59	28	6.8	10.8	BDL
			20.03.2017	61	26	4.6	9.9	BDL
			23.03.2017	74	23	5.4	11.5	BDL
			27.03.2017	60	21	7.2	13.2	BDL
			30.03.2017	69	29	5.8	15.2	BDL
2.	Guest House Lat. : 21°36'31.56"N Long.: 85°30'31.44"E	October´16	03.10.2016	Monitoring has not been done due to rain.				
			05.10.2016					
			12.10.2016	55	22	5.8	11.1	BDL
			17.10.2016	60	26	6.1	9.9	BDL
			19.10.2016	57	21	5.5	12.6	BDL
			24.10.2016	69	28	5.9	11.8	BDL
			26.10.2016	63	25	6.7	BDL	BDL
		November´16	01.11.2016	Monitoring has not been done due to rain				
			03.11.2016	54	25	4.6	10.2	BDL
			07.11.2016	64	30	5.2	11.3	BDL
			09.11.2016	69	32	5.9	12.8	BDL
			14.11.2016	56	25	4.8	BDL	BDL
			16.11.2016	65	31	5.5	11.5	BDL
			21.11.2016	58	27	BDL	12.4	BDL
			23.11.2016	71	33	7.4	13.5	BDL
			28.11.2016	61	29	4.7	9.9	BDL
			30.11.2016	47	18	4.2	9.2	BDL
		December´16	01.12.2016	72	27	5.5	12.7	BDL
			05.12.2016	60	26	5.3	11.6	BDL
			07.12.2016	64	25	5.8	12.3	BDL
			12.12.2016	58	21	4.9	10.3	BDL
			14.12.2016	67	30	7.3	13.2	BDL
			19.12.2016	74	33	6.9	14.3	BDL
			21.12.2016	52	23	4.8	9.7	BDL
			26.12.2016	67	28	7.1	12.8	BDL
			28.12.2016	63	29	5.5	10.8	BDL
		January´17	02.01.2017	65	29	5.9	12.4	BDL
			04.01.2017	57	25	5.1	11.3	BDL
			09.01.2017	47	18	BDL	10.8	BDL



Sl.No	Location	Month	Concentration	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)
			11.01.2017	49	19	BDL	10.5	BDL
			16.01.2017	66	30	5.6	14.3	BDL
			18.01.2017	71	28	6.4	13.8	BDL
			23.01.2017	50	21	4.6	9.8	BDL
			25.01.2017	59	24	5.1	10.5	BDL
			30.01.2017	63	25	5.5	11.1	BDL
		February´17	02.02.2017	59	24	4.8	10.7	BDL
			06.02.2017	57	22	4.9	10.8	BDL
			09.02.2017	63	28	6.4	13.1	BDL
			13.02.2017	65	31	5.6	12.3	BDL
			16.02.2017	50	20	BDL	9.6	BDL
			20.02.2017	46	16	BDL	BDL	BDL
			23.02.2017	67	33	6.2	13.3	BDL
			27.02.2017	61	27	5.7	11.8	BDL
		March´17	02.03.2017	54	24	7.6	12.8	BDL
			06.03.2017	57	20	6.1	11.7	BDL
			09.03.2017	48	17	5.2	10.6	BDL
			14.03.2017	75	21	6.5	14.0	BDL
			17.03.2017	56	25	7.9	12.9	BDL
			20.03.2017	74	32	6.9	14.5	BDL
			23.03.2017	69	30	8.3	13.4	BDL
			27.03.2017	50	19	6.5	10.2	BDL
			30.03.2017	66	28	7.4	12.4	BDL
3.	OMC Medical Lat. : 21°36'16.38"N Long.: 85°30'32.22"E	October´16	03.10.2016	Monitoring has not been done due to rain.				
			05.10.2016					
			12.10.2016	59	23	6.9	10.2	BDL
			17.10.2016	66	28	7.2	9.8	BDL
			19.10.2016	75	31	6.3	11.3	BDL
			24.10.2016	71	29	7.0	10.4	BDL
			26.10.2016	68	26	5.8	10.0	BDL
		November´16	01.11.2016	Monitoring has not been done due to rain				
			03.11.2016	62	28	4.4	10.8	BDL
			07.11.2016	55	25	BDL	9.2	BDL
			09.11.2016	50	23	4.6	BDL	BDL
			14.11.2016	58	27	5.3	11.4	BDL
			16.11.2016	71	33	6.5	12.5	BDL
			21.11.2016	64	28	5.7	10.3	BDL
			23.11.2016	67	32	6.3	12.1	BDL
			28.11.2016	77	35	5.9	10.8	BDL
			30.11.2016	53	22	4.7	9.9	BDL
		December´16	01.12.2016	69	32	6.3	13.2	BDL
			05.12.2016	75	34	6.1	14.4	BDL
			07.12.2016	68	26	5.5	12.1	BDL

Sl.No	Location	Month	Concentration	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)
			12.12.2016	73	35	7.5	15.6	BDL
			14.12.2016	76	36	6.8	14.3	BDL
			19.12.2016	69	32	5.7	13.3	BDL
			21.12.2016	73	34	6.8	13.1	BDL
			26.12.2016	82	36	7.3	14.2	BDL
			28.12.2016	59	25	5.8	11.6	BDL
		January´17	02.01.2017	73	32	6.4	13.2	BDL
			04.01.2017	82	38	7.3	15.4	BDL
			09.01.2017	84	37	7.1	15.6	BDL
			11.01.2017	69	31	6.2	13.1	BDL
			16.01.2017	76	35	6.6	14.3	BDL
			18.01.2017	75	33	7.3	15.1	BDL
			23.01.2017	58	22	5.6	10.8	BDL
			25.01.2017	64	25	5.8	12.1	BDL
			30.01.2017	72	31	6.7	13.8	BDL
		February´17	02.02.2017	65	29	5.7	12.3	BDL
			06.02.2017	73	31	6.8	13.5	BDL
			09.02.2017	76	34	7.2	13.8	BDL
			13.02.2017	58	26	5.2	11.4	BDL
			16.02.2017	62	27	5.7	12.6	BDL
			20.02.2017	78	36	7.2	14.3	BDL
			23.02.2017	71	33	6.8	13.7	BDL
			27.02.2017	53	23	7.0	12.9	BDL
		March´17	02.03.2017	73	29	6.3	15.6	BDL
			06.03.2017	80	37	5.2	13.5	BDL
			09.03.2017	78	35	5.9	14.1	BDL
			14.03.2017	85	41	8.5	12.9	BDL
			17.03.2017	82	35	7.0	14.5	BDL
			20.03.2017	68	22	7.6	11.7	BDL
			23.03.2017	74	29	5.6	13.2	BDL
			27.03.2017	69	25	6.9	14.6	BDL
			30.03.2017	79	41	6.8	13.2	BDL
4.	Suakati College Lat. : 21°36'2.58"N Long.: 85°30'12"E	October´16	04.10.2016	Monitoring has not been done due to rain.				
			06.10.2016					
			13.10.2016	61	29	5.5	10.3	BDL
			18.10.2016	56	25	5.9	11.5	BDL
			20.10.2016	69	27	7.0	12.6	BDL
			25.10.2016	72	34	6.3	10.8	BDL
			27.10.2016	63	23	5.0	9.7	BDL
		November´16	02.11.2016	Monitoring has not been done due to rain				
			08.11.2016	59	31	4.9	10.1	BDL
			10.11.2016	63	29	6.3	11.5	BDL
			15.11.2016	62	30	5.8	11.2	BDL

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Sl.No	Location	Month	Concentration	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)
			17.11.2016	68	28	BDL	9.9	BDL
			22.11.2016	78	36	6.7	14.7	BDL
			24.11.2016	81	37	7.3	12.2	BDL
			29.11.2016	62	23	6.0	10.7	BDL
		December´16	06.12.2016	79	34	7.0	14.8	BDL
			08.12.2016	71	31	6.3	13.3	BDL
			13.12.2016	78	36	6.8	13.9	BDL
			15.12.2016	62	27	5.7	12.6	BDL
			20.12.2016	63	26	5.5	12.1	BDL
			22.12.2016	59	25	5.7	13.5	BDL
			27.12.2016	71	29	6.4	12.8	BDL
			29.12.2016	78	38	6.4	14.8	BDL
		January´17	03.01.2017	60	27	5.4	11.6	BDL
			05.01.2017	71	33	6.8	13.6	BDL
			10.01.2017	62	27	5.8	12.3	BDL
			12.01.2017	65	30	5.5	13.3	BDL
			17.01.2017	55	21	5.1	11.0	BDL
			19.01.2017	69	28	6.8	13.1	BDL
			24.01.2017	68	27	5.6	12.6	BDL
			31.01.2017	77	33	6.8	13.9	BDL
		February´17	03.02.2017	69	30	5.0	12.1	BDL
			07.02.2017	58	23	5.1	11.4	BDL
			10.02.2017	62	28	5.7	12.7	BDL
			14.02.2017	73	34	7.1	15.1	BDL
			17.02.2017	70	33	6.2	13.8	BDL
			21.02.2017	51	21	5.0	11.6	BDL
			28.02.2017	66	30	6.2	13.2	BDL
		March´17	03.03.2017	58	23	5.2	9.6	BDL
			07.03.2017	Monitoring has not been done due to rain.				
			10.03.2017	52	22	6.2	10.4	BDL
			15.03.2017	62	27	4.8	12.5	BDL
			18.03.2017	74	29	7.8	14.6	BDL
			21.03.2017	87	38	5.9	13.6	BDL
			24.03.2017	63	25	5.2	11.5	BDL
			28.03.2017	69	31	7.1	12.2	BDL
			31.03.2017	72	32	6.9	11.9	BDL

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Sl.No.	Location	Month	Concentration	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)
5.	Workshop Maintenance Area Lat. : 21°36'38.94"N Long.: 85°29'27.78"E	October'16	04.10.2016	Monitoring has not been done due to rain.				
			06.10.2016					
			13.10.2016	49	19	5.2	9.7	BDL
			18.10.2016	53	22	5.7	10.4	BDL
			20.10.2016	59	25	5.4	9.9	BDL
			25.10.2016	64	29	5.9	11.1	BDL
			27.10.2016	57	21	4.9	BDL	BDL
		November'16	02.11.2016	Monitoring has not been done due to rain				
			08.11.2016	44	21	4.3	BDL	BDL
			10.11.2016	74	34	6.3	12.4	BDL
			15.11.2016	46	22	BDL	9.7	BDL
			17.11.2016	52	26	4.9	BDL	BDL
			22.11.2016	64	31	5.7	11.5	BDL
			24.11.2016	72	31	6.7	12.6	BDL
			29.11.2016	58	26	4.8	10.3	BDL
		December'16	06.12.2016	61	25	5.8	11.3	BDL
			08.12.2016	67	28	5.2	12.1	BDL
			13.12.2016	66	25	6.2	12.7	BDL
			15.12.2016	60	31	6.1	12.5	BDL
			20.12.2016	56	21	5.0	11.4	BDL
			22.12.2016	71	27	5.2	14.5	BDL
			27.12.2016	50	20	4.8	9.9	BDL
			29.12.2016	63	26	6.0	11.8	BDL
		January'17	03.01.2017	55	23	4.8	10.8	BDL
			05.01.2017	63	30	5.7	12.0	BDL
			10.01.2017	78	36	6.5	13.1	BDL
			12.01.2017	51	20	4.6	9.9	BDL
			17.01.2017	58	24	4.9	9.7	BDL
			19.01.2017	65	30	5.9	12.3	BDL
			24.01.2017	58	22	5.6	10.8	BDL
			31.01.2017	64	25	5.8	12.1	BDL
		February'17	03.02.2017	62	27	5.8	12.6	BDL
			07.02.2017	56	18	6.5	12.7	BDL
			10.02.2017	72	31	6.7	12.6	BDL
			14.02.2017	58	26	4.8	10.3	BDL
			17.02.2017	77	35	7.3	14.5	BDL
			21.02.2017	56	24	5.8	11.7	BDL
			28.02.2017	61	28	6.0	12.5	BDL
		March'17	03.03.2017	71	30	5.8	14.1	BDL
			07.03.2017	Monitoring has not been done due to rain.				
			10.03.2017	63	29	5.1	12.7	BDL
			15.03.2017	60	34	5.7	13.6	BDL
			18.03.2017	54	25	4.8	11.3	BDL

			21.03.2017	76	36	7.4	13.1	BDL
			24.03.2017	72	32	7.2	12.9	BDL
			28.03.2017	55	20	5.1	10.4	BDL
			31.03.2017	62	28	6.9	10.6	BDL
6.	Daunra Village Lat. : 21°36'27.66"N Long.: 85°29'6.42"E	October'16	04.10.2016	Monitoring has not been done due to rain.				
			06.10.2016					
			13.10.2016	54	16	BDL	9.5	BDL
			18.10.2016	58	19	5.1	10.0	BDL
			20.10.2016	61	24	4.6	BDL	BDL
			25.10.2016	52	20	4.9	9.7	BDL
			27.10.2016	47	18	5.3	9.2	BDL
		November'16	02.11.2016	Monitoring has not been done due to rain				
			08.11.2016	62	23	4.7	11.8	BDL
			10.11.2016	66	25	5.4	12.3	BDL
			15.11.2016	63	22	5.1	10.5	BDL
			17.11.2016	48	19	4.6	9.7	BDL
			22.11.2016	52	21	4.9	9.9	BDL
			24.11.2016	55	23	4.6	9.6	BDL
			29.11.2016	50	18	4.8	9.9	BDL
		December'16	06.12.2016	63	26	5.5	12.6	BDL
			08.12.2016	70	31	6.2	13.5	BDL
			13.12.2016	65	27	5.9	12.4	BDL
			15.12.2016	71	34	6.3	13.4	BDL
			20.12.2016	72	29	6.1	13.3	BDL
			22.12.2016	58	24	5.0	11.3	BDL
			27.12.2016	67	30	6.0	13.8	BDL
			29.12.2016	77	33	6.8	13.9	BDL
		January'17	03.01.2017	72	32	6.1	12.9	BDL
			05.01.2017	65	28	6.3	11.5	BDL
			10.01.2017	51	22	4.8	10.4	BDL
			12.01.2017	55	24	5.1	10.8	BDL
			17.01.2017	49	20	4.7	10.5	BDL
			19.01.2017	73	35	6.7	13.0	BDL
			24.01.2017	57	26	5.2	13.4	BDL
			31.01.2017	46	19	BDL	BDL	BDL
		February'17	03.02.2017	69	32	6.3	12.9	BDL
			07.02.2017	65	27	5.8	12.8	BDL
			10.02.2017	62	28	6.4	10.8	BDL
			14.02.2017	55	25	BDL	9.2	BDL
			17.02.2017	50	23	4.6	BDL	BDL
			21.02.2017	58	27	5.3	11.4	BDL
			28.02.2017	71	33	6.5	12.5	BDL
		March'17	03.03.2017	64	27	5.3	12.4	BDL
			07.03.2017	Monitoring has not been done due to rain.				
			10.03.2017	53	31	5.1	12.7	BDL

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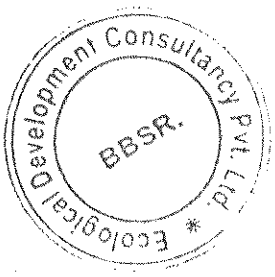
			15.03.2017	78	34	5.7	14.2	BDL
			18.03.2017	51	22	4.8	12.3	BDL
			21.03.2017	59	25	5.6	13.9	BDL
			24.03.2017	65	24	5.8	13.2	BDL
			28.03.2017	60	30	7.4	11.5	BDL
			31.03.2017	75	29	7.8	12.2	BDL
CPCB Standard			**24 Hrly**	**100**	**60**	**80**	**80**	**4.0**
			Annual	**60**	**40**	**40**	**50**	--

Note: BDL for SO_2 : 4.0 µg/m^3; BDL for NOx : 9.0 µg/m^3; BDL for CO : 0.1mg/m^3.



2. Fugitive Emission Monitoring ($\mu g/m^3$)

Sl. No.	Month	Near Magazine	Near Ore Stock Yard (Fines)	Near Quarry Ore Stock Pile 10-40mm	Near Hill Top	Near Quarry (V-C)	Near Quarry (V.D-2)
		Lat. : 21°06'10.98"N Long.: 85°48'29.40"E	Lat. : 21°05'57.54"N Long.: 85°48'35.88"E	Lat. : 21°05'52.44"N Long.: 85°48'33.72"E	Lat. : 21°06'24.96"N Long.: 85°48'20.10"E	Lat. : 21°06'17.58"N Long.: 85°51'4.92"E	Lat. : 21°05'42.24"N Long.: 85°48'40.68"E
1	October'16	147	175	198	117	164	155
2	November'16	191	224	287	128	180	173
3	December'16	217	249	302	154	188	195
4	January'17	242	263	338	177	193	216
5	February'17	277	194	361	189	235	254
6	March'17	293	341	375	168	258	283
Permissible Limit		1200µg/m³					

2. Noise Level

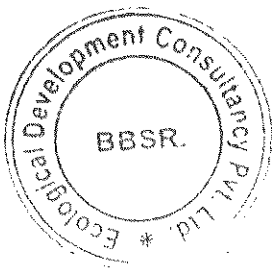
A. Ambient noise level

Sl. No.	Location	Co-ordinates	Day (06:00-22:00 hrs.)			Night (22:00-06:00hrs.)		
			Minimum	Maximum	CPCB Standard	Minimum	Maximum	CPCB Standard
1	Suakati Village(R)	Lat. : 21°05'38.7"N Long.: 85°48'42.84"E	43.8	64.3	75	BDL	48.7	70
2	Guest House(R)	Lat. : 21°06'34.08"N Long.: 85°49'29.4"E	33.4	55.4	55	BDL	43.8	45
3	OMC Medical(S)	Lat. : 21°06'40.44"N Long.: 85°50'22.86"E	40.3	58.3	50	BDL	45.8	40
4	Suakati College(S)	Lat. : 21°06'30.72"N Long.: 85°51'35.7"E	36.8	56.2	50	BDL	43.5	40

Note: I – Industrial Area; R – Residential Area; C- Commercial Area; S – Silence Zone; BDL of Noise Level Meter is 30 dBA.00

B. Work zone noise level

Sl. No.	Location	Coordinates	Day (08:00-15:00 hrs.)		
			Minimum	Maximum	OSHA Standard
1	Fines Loading Point	21°37'11.6" N 85°30'40"E	48.4	75.1	90
2	Weigh Bridge- No.6	21°37'06.6" N 85°30'41.6"E	45.9	75.1	90



4. Surface Water Monitoring

Sl. No.	Parameters	Near Magazine	Near Suakati Nala	Near guest House	Near Nunghara Nala
		21°36'28.62"N 85°30'20.82E	21°36'34.26"N 85°31'15.12"E	21°36'39.54"N 85°30'28.92"E	21°35'39.24"N 85°30'13.86"E
1	Colour	Colourless	Colourless	Colourless	Colourless
2	Odour	U/O	U/O	U/O	U/O
3	Suspended Solids	51-84	53-89	48-83	54-90
4	Turbidity	20-34	16-40	14-34	22-36
5	pH value	7.45-7.84	6.85-7.85	7.08-7.89	7.16-7.82
6	Temperature	22-35	22-33	23-36	20-34
7	Oil & Grease	<0.1	<0.1	<0.1	<0.1
8	Ammonical Nitrogen	1.45-2.50	1.17-2.90	1.24-2.80	1.41-2.90
9	Total Kjeldhal Nitrogen	3.1-3.8	2.0-2.9	2.1-2.9	3.0-3.9
10	Total Hardness (as $CaCO_3$)	40-77	40-67	45-59	39-69
11	Iron (as Fe)	1.52-2.34	1.34-1.96	2.02-2.50	1.02-2.78
12	Chloride (as Cl)	11-18	20-29	13-29	20-38
13	Fluoride (as F)	<0.001	<0.001	<0.001	<0.001
14	Total Dissolved Solids	54-91	61-91	51-82	53-84
15	Calcium (as Ca)	13.1-17.3	13.5-25.4	13.2-19.4	11.2-25.8
16	Magnesium (as Mg)	5.0-5.8	4.1-6.8	5.0-5.9	5.2-7.3
17	Copper(as Cu)	<0.0001	<0.0001	<0.0001	<0.0001
18	Nickel(as Ni)	0.010-0.027	0.020-0.038	0.010-0.019	0.011-0.027
19	Manganese (as Mn)	0.031-0.045	0.041-0.064	0.040-0.049	0.031-0.057
20	Sulfate (as SO_4)	11-28	23-38	17-28	20-38
21	Nitrate (as NO_3)	0.021-0.037	0.020-0.054	0.024-0.054	0.030-0.049
22	Sulfide(as S)	<0.1	<0.1	<0.1	<0.1
23	Phenolic Compounds (as C_6H_5OH)	<0.001	<0.001	<0.001	<0.001
24	Mercury (as Hg)	<0.00001	<0.00001	<0.00001	<0.00001
25	Cadmium (as Cd)	<0.00001	<0.00001	<0.00001	<0.00001
26	Selenium (as Se)	<0.0001	<0.0001	<0.0001	<0.0001
27	Arsenic (as As)	<0.0001	<0.0001	<0.0001	<0.0001
28	Cyanide (as CN)	<0.002	<0.002	<0.002	<0.002
29	Lead (as Pb)	<0.0001	<0.0001	<0.0001	<0.0001
30	Zinc (as Zn)	<0.0001	<0.0001	<0.0001	<0.0001
31	Hexavalent Chromium(as Cr^{+6})	<0.002	<0.002	<0.002	<0.002
32	Anionic Detergent as MBAS	<0.01	<0.01	<0.01	<0.01
33	Alkalinity (as $CaCO_3$)	25-37	30-62	40-55	41-66
34	Free Ammonia (N)	0.10-0.17	0.15-0.28	0.11-0.28	0.20-0.28
35	Boron (as B)	<0.0001	<0.0001	<0.0001	<0.0001
36	Coliform Organism	110-154	105-163	128-170	112-148
37	Sodium Absorption Ratio	0.40-0.57	0.52-0.71	0.41-0.71	0.40-0.54
38	Dissolved Oxygen as O_2	5.1-6.8	5.2-6.8	5.1-6.8	5.0-6.9
39	BOD, 3 days at 27°C	1.1-2.9	1.4-2.9	1.1-3.4	2.1-3.9
40	Electrical Conductivity (EC)	5.0-6.1	6.0-6.8	5.0-5.8	5.3-6.8
41	COD	93-142	101-158	92-134	90-152
42	Phosphate	0.21-0.47	0.31-0.42	0.21-0.36	0.30-0.46
43	CO_2	5.0-5.8	5.1-6.9	5.0-5.7	5.2-6.1

Note: U/O-Un objectionable.

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5. Ground Water

Sl. No.	Parameter	Unit	Permissible limit	Daunra village	OMC Office Front	Tala Kainsari	Jamudihi Village	Lunghar Village
				Lat. : 21°36'29.4"N Long.: 85°29'10.2"E	Lat. : 21°36'18.5"N Long.: 85°30'32.2"E	Lat. : 21°36'26.7"N Long.: 85°31'24.5"E	Lat. : 21°36'26.7"N Long.: 85°32'01.1"E	Lat. : 21°35'15.4"N Long.: 85°29'48.9"E
1	pH	---	6.5-8.5	7.36-7.89	6.96-7.06	7.08-7.47	7.54-7.78	7.44-7.61
2	Odour	---	Agreeable	AL	AL	AL	AL	AL
3	Colour	Hazen	5 (Max)	CL	CL	CL	CL	CL
4	Taste	---	Agreeable	AL	AL	AL	AL	AL
6	Turbidity	NTU	1 (Max)	0.20-0.28	0.24-0.40	0.44-0.66	0.58-0.84	0.26-0.32
7	Chloride (as Cl)	mg/l	250 (Max)	3.1-3.8	2.2-2.7	3.4-3.99	2.5-2.8	2.4-2.7
8	Residual free chlorine	mg/l	0.2 (Min)	ND	ND	ND	ND	ND
9	Total dissolved solid	mg/l	500 (Max)	105-114	101-107	112-124	107-110	131-154
10	Total Hardness (as $CaCO_3$)	mg/l	200 (Max)	61-67	58-69	47-50	49-68	44-50
11	Iron (as Fe)	mg/l	0.3 (Max)	0.55-0.60	0.32-0.38	0.22-0.28	0.031-0.36	0.24-0.30
12	Calcium (as ca)	mg/l	75 (Max)	15.1-18.5	10.4-12.8	21.7-22.9	15.4-19.1	18.1-21.4
13	Magnesium (as Mg)	mg/l	30 (Max)	12.8-13.2	10.4-14.1	12.2-21.7	12.0-15.4	10.3-17.1
14	Sulfate (as SO_4)	mg/l	200 (Max)	5.0-5.7	4.1-4.2	2.4-3.0	3.2-3.5	3.7-4.8
15	Manganese (as Mn)	mg/l	0.10 (Max)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
16	Nitrate (as NO_3)	mg/l	45 (Max)	3.2-3.8	3.4-3.6	2.1-2.4	3.5-3.7	3.2-3.9
17	Alkalinity (as $CaCO_3$)	mg/l	200 (Max)	31-38	45-49	28-33	30-37	22-25
18	Aluminum (as Al)	mg/l	0.03 (Max)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
19	Fluoride (as F)	mg/l	1.0(Max)	<0.001	<0.001	<0.001	<0.001	<0.001
20	Anionic Detergent	mg/l	0.2 (Max)	<0.01	<0.01	<0.01	<0.01	<0.01
21	Cadmium (as Cd)	mg/l	0.003 (Max)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
22	Copper (as Cu)	mg/l	0.05 (Max)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
24	Zinc (as Zn)	mg/l	5 (Max)	0.25-0.25	0.31-0.39	0.22-0.29	0.34-0.38	0.26-0.27
23	Lead (as Pb)	mg/l	0.01 (Max)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
24	Selenium (as Se)	mg/l	0.01 (Max)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
25	Phenolic compound (as C_6H_5OH)	mg/l	0.001 (Max)	ND	ND	ND	ND	ND
26	Mineral oil	mg/l	0.5 (Max)	ND	ND	ND	ND	ND
27	Total Coli form	MPN/100ml	$	NIL	NIL	NIL	NIL	NIL
28	Mercury (as Hg)	mg/l	0.001 (Max)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
29	Cyanide (as CN)	mg/l	0.05 (Max)	<0.002	<0.002	<0.002	<0.002	<0.002
30	Boron (as B)	mg/l	0.5 (Max)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
31	Arsenic (as As)	mg/l	0.01(Max)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
32	COD	mg/l	$	ND	ND	ND	ND	ND

Note: CL : Colorless; AL : Agreeable; ND : Not Detected,$-Not Specified.

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6. Ground Water Level Monitoring

Sl. No.	Location Name	Coordinates		Water Level (Below ground level, in meters)
		Latitude	Longitude	
1	Daunra Village	21^{0}36'27.5" N	85^{0}29'5.5" E	3.9-5.1
2	OMC Durga Mandap	21^{0}36'15.7" N	85^{0}30'30.2" E	5.3-7.4
3	Suakati Village	21^{0}36'48.0" N	85^{0}30'51.6" E	6.6-8.3
4	Tala Kainsari	21^{0}37'26.3" N	85^{0}31'26.3" E	1.4-1.9

7. Flow of Water Measurement

Station code	Co-ordinates	Flow of Water in m^3/min
FW1	21^{0}36'28.62" N; 85^{0}30'20.82" E	0.487-1.085
FW2	21^{0}36'34.26" N; 85^{0}30'28.92" E	1.019-1.986
FW3	21^{0}36'39.54" N; 85^{0}30'28.92" E	0.326-0.864
FW4	21^{0}35'39.24" N; 85^{0}30'13.86" E	1.281-2.941

8. Vehicular Emission

Sl. No.	Number of Vehicles monitored	Parameters			
		CO (%)	HC (ppm)	NOx (%)	Smoke (HSU)
1.	47	0.005-0.316	19-47	74.93-79.52	20.34-61.76
Permissible Standard		3.0	1500	--	65