स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
भिलाई इस्पात संयंत्र
BHILAI STEEL PLANT

OFFICE OF THE DGM CUM MINES MANAGER
HIRRI MINES

No. OMQ/HM/MM/Env./2018/ 213 Date 10 /04/18

To,
Additional Director
Ministry of Environment & Forrest
Paryavaran Bhawan,CGO Complex,Lodhi Road,
New Delhi-110001.

Sub.:- Six monthly report of letter no.J-11015/65/2003-1A-II(M) dated 31st March 2005.

Dear Sir,

The Six monthly compliance report (Oct-17 To March-18) of above subject letter in respect of Hirri Dolomite Mines is enclosed here with of your kind perusal please.

This is for necessary action please.

(Sanjay Boratwar)
DGM Cum Mines Manager
Hirri Mines

1. The Director(CPCB),Parivesh Bhawan,
CBD-Cum-office complex,East Arjun Nagar,Deihi-110032.

2 .Shri Kanwarjit singh APCCF(C)
Ministry of Environment & Forrest,Climate change
Regional Office,(WCZ), Ground floor, East Wing,
New Secretariat Building,Civil line,Nagpur-440001.

3.Member Secretary,CECB,Raipur(C.G.).

4.Regional Officer,CECB,Bilaspur (C.G.).

A. SPECIFIC CONDITIONS

General Condition		Status
(i)	No two pits shall be simultaneously worked i.e. before the first pit is exhausted and reclamation work completed, no mineral area shall be worked..	Partly merger of two pit in a single is completed and being worked as single pit.
(ii)	After exhausting the first mine pit and before starting mining operation in the next pit,reclamation and plantation work in the exhausted pit shall be completed so as to ensure that reclamation,forest cover and vegetation are visible during the first year of mining operation in the next pit. This process will follow till the last pit is exhausted.Adequate rehabilitation of mine pit shall be completed before any ore bearing are worked.	Backfilling, reclamation work is in accordance with the approved mining scheme which is mined out area.
(iii)	Adequate buffer zone shall be maintained between two consecutive mineral bearing deposit..	Buffer zone is being maintained.
(iv)	Blast vibration study shall be conducted and submitted to the ministry within six months. The study shall also provide measures for prevention of blasting associated impact on near house and agriculture fields.	Control blasting is in practice. The ground vibration is within safe limits as per consultancy report prepared by CIMFR. Only shock tubes(Non-electric) are being used to control vibration, noise and fly rock.
(v)	Fugitive dust generation shall be controlled Fugitive dust emissions shall be regularly monitored at location of nearest human habitation (including schools and other public amenities located nearest to source of dust generation as applicable) and records submitted to the ministry.	Only wet and day drilling is being operated.Haul and transportation roads are properly wet with water sprinkler .It is regularly monitored.
(vi)	Shelter belt i.e. wind break of 30m width and consisting of at least 5 tires around lease facing and school/agriculture fields(if any the vicinity) shall be raised.	Plantation have been done around the lease boundary and in the acquired land area.
(vii)	Hydro-geological study of the area shall be reviewed annually . In case advers effect of ground water quality and quality is observed mining shall be stopped and resumed only after mitigating step to contain any advers impact on ground water is implemented.	Hydro-geological study is done.Ground water quality within norms.
(viii)	Socio-economic survey on house hold basis for the three revenue village(including its hamlets if any) shall be carried out and economic package containing sustainable income generating scheme/package shall be cumulated and submit the same to the ministry within six months to the this will be in addition to vocational training for individuals imparted to take up self employment and jobs..	Socio-economic study has been completed and it already sent to ministry for acceptance .
(ix)	Need based assessment for the near by villages shall be conducted to study economic measures which can help in upliftment of poor section of society. Income generating projects/tools such as development of fodder farm, fruit bearing orchards, vocational training etc. can form a part of such programme. Company shall provide separate budget for community development activities and income generating programmes. This will be in addition to vocational training for individuals imparted to take up self	Reportsubmitted(Letter No.OMQ/HM/MM/Env./2008/768 ,Dated-12.03.08).Digital processing for year 2011 has completed .

	employment and jobs.	
(x)	.Land use pattern of near by villages shall be studied and action plan for abatement and compensation for damage to agriculture land/common property land(if any) in the near by villages,due to mining activity shall be submitted to the regional office of the ministry within six months.Annual status of implementation of the plan and expenditure thereon shall be reported to the regional office of the ministry from time to time	Study Report submitted to Regional, MoEF vide letter No.OMQ/HM/MM/Env.2008/768 dated - 12.03.2008. Digital processing for the year 2011 has been completed.
(xi)	Maintenance of village roads through which transportation of ore are undertaken shall be carried out by the company regularly at its own expanses.The road shall be black topped.	Ore is being transported through company roads and is maintained by Company. Technical study under process for making roads black topped.
(xii)	Rain water harvesting shall be undertaken to recharge the ground water sources. Status of implementation shall submit to the regional office of the ministry within six months and thereafter every year from next consequent year .	Rain water harvesting in store ,workshop,school building,mangal bhawan,Hospital and Administrative builing premise are completed and maintened.
(xiii)	Measures for prevention and control of soil erosion and management of silt shall be undertaken. Protection of dumps against erosion shall be carried out with geo textile matting or other suitable material, and thick plantations of native trees and shrubs shall be carried out at the dump slopes. Dumps shall be protected by retaining walls.	Dumps are properly maintained and native trees and shrubs have been planted at dump slopes.
(xiv)	Trenches / garland drains shall be constructed at foot of dumps and coco filters installed at regular intervals to arrest silt from being carried to water bodies. Adequate number of Check Dams and Gully Plugs shall be constructed across seasonal/perennial nallahs (if any) flowing through the ML area and silts arrested. De- silting at regular intervals shall be carried out. Garland drain of appropriate size, gradient and length shall be constructed for both mine pit and for waste dump 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 setting of silt material. Sedimentation pits shall be constructed at corners of the garland drains and desilted at regular intervals.	Trenches and garland drains have been constructed around waste dumps. Check dams are constructed at mines water discharge point. Slope plantation of the waste dumps have been done for slope stability.
(xv)	Ground water in the core zone shall be regularly monitored for contamination and depletion due to mining activity and records maintained. The monitoring data shall be submitted to the regional office of the Ministry regularly. Further, monitoring points shall be located between the mine and drainage in the direction of flow of ground water shall be set up and records maintained.	Ground water in the core zone is regularly monitored for contamination and depletion due to mining activity and records maintained. Monitoring data is being submitted to ministry(Report enclosed)
(xvi)	Cultivable waste land (within 5 km of the lease) shall be identified and fodder farming or other suitable productive use of waste land shall be taken up in phased manner. Status of implementation shall be submitted to the Regional office of the Ministry	Already planned in socio-economic development plan.
(xvii)	Adequate protection against dust and other environmental	Adequate protection measures like

	pollution arising due to mining activity shall be made so that human habitation located near the lease (as applicable) are not adversely affected. The status of implementation shall be reported to the Ministry and work shall be completed before start of mining.	plantation and water sprinkling are being under taken on haul and transport roads for protection against dust and other environmental pollution arising due to mining activity.
(xviii)	Monitoring of soil samples for assessment of transformation to acidic state or contamination due to mining activity (as applicable) shall be regularly conducted and records maintained.	Soil sampling is being done regularly to monitor the quality of soil.
(xix)	Transportation of ore shall be done by covering the trucks with tarpaulin or other suitable mechanism so that no spillage of ore / dust takes place. Transportation shall be done only during day time.	Transportation of ore is being done during day time and by covering the trucks with tarpaulin.
(xx)	Occupational health and safety measures for the workers including identification of work related health hazards, training on malaria eradication, HIV, and health effects on exposure to mineral dust etc. shall be carried out. The company shall engage a full time qualified doctor who is trained in occupational health. Periodic monitoring for exposure to respirable mineral dust on the workers shall be conducted and records maintained including health records of the workers. Awareness programme for workers on impact of mining on their health and precautionary measures like use of personal equipments etc. shall be carried out periodically. Review of impact of various health measures undertaken (at interval of five years of less) shall be conducted followed by follow up action wherever required.	Occupational health and safety measures of the workers are regularly monitored. A full time doctor is engaged. Awareness program is conducted time to time. Medical camps around the mining area is being organised. Necessary measures for malaria eradication is being taken.
(xxi)	Top soil / solid waste shall be stacked properly with proper slope and adequate safeguards and shall be utilized for backfilling (wherever applicable) for reclamation and rehabilitation of mined out area.Top soil shall be separately stacked for utilization later for reclamation and shall not be stacked along with over burden.	Top Soil is stacked seperately. Solid waste is being utilized for backfilling.
(xxii)	Over burden (OB) shall be stacked at earmarked dump site(s) only and shall not be kept active for long period. The maximum height of the dump shall not exceed 30 m, each stage shall preferably be of10 m and overall slope of the dump shall not exceed 28°. The OB dump shall be backfilled. The OB dumps shall be scientifically vegetated with suitable native species to prevent erosion and surface run off. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests on six monthly basis.	Overburden is being used for backfilling the mined out area as per approved Mining scheme.
(xxiii)	Slope of the mining bench and ultimate pit limit shall be as per the mining scheme approved by Indian Bureau of Mines.	Slope of the mining bench is being maintained as per the Approved mining scheme by Indian Bureau of Mines.
(xxiv)	Adequate plantation shall be raised in the ML area, haul roads, OB dump sites etc. Green belt development shall be carried out considering CPCB guidelines including selection of plant species and in consultation with the local DFO / Agriculture Department. Herbs and shrubs shall also form a part of afforestation programme besides	Adequate plantation has been done in the Mining Lease area and haul roads as per guidelines.

	tree plantation. The density of the trees shall not be less than 2500 plants per ha. The company shall involve local people with the help of self group for plantation programme. Details of year wise afforestation programme including rehabilitation of mined out area shall be submitted to the Regional Office of the Ministry every year.	
(xxv)	Regular monitoring of ground water level and quality shall be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring shall 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 regularly sent to the Regional Office of the Ministry, Central Ground Water Authority and Regional Director, Central Ground Water Board.	Monitoring of ground water for water table and water quality is being carried out as per guidelines.(Report enclosed)
(xxvi)	Adequate air monitoring stations shall be installed in areas of human habitations near the mine and the results of ambient air quality shall be maintained and regularly submitted to the Regional Office of the Ministry.	Adequate Air Monitoring Stations have been established in core and buffer zone as per guidelines and air monitoring is being done and reports are being submitted to regional office.(Report enclosed)
(xxvii)	The waste water from the mine shall be treated to conform to the prescribe standards before discharging in to the natural stream. The discharged water from the Tailing Dam (if any) shall be regularly monitored and report submitted to the Ministry of Environment & Forests, Central Pollution Control Board and the state pollution control board.	No waste water is being generated from any mining activities. Waste water is only being generated from washing of equipment for which Effluent treatment Plant has been made.
(xxvii)	Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transportation of ores and others shall have valid permissions as prescribed under Central Motor Vehicle Rules, 1989 and its amendments. Transportation of ore shall be done only during day time. The vehicles transporting ores shall be covered with a tarpaulin or other suitable enclosures so that no dust particles / fine matters escape during the course of transportation. No overloading of ores for transportation shall be committed. The trucks transporting ore shall not pass through wild life sanctuary.	Vehicular emissions are regularly monitored and are under control. The vehicles transporting ores are covered with tarpaulin.
(xxviii)	Prior permission from the Competent Authority shall be obtained for extraction of ground water, if any.	Prior permission from the Competent Authority will be obtained for extraction of ground water.
(xxix)	Action plan with respect to suggestions/improvements and recommendations made during public consultation/hearing shall be submitted to the Ministry and the State Govt within six months.	Action plan with respect to suggestions/improvements and recommendations made during public consultation/hearing submitted.
(xxx)	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.	Final Closure Plan will be submitted to MoEF 5 years in advance of final closure of mine
(xxxi)	M/s BHP / M/s SAIL shall facilitate a visit of a Sub-Group (to be constituted by the Expert Appraisal Committee) to assess the implementation of the socio	SAIL, BSP shall facilitate visit of Sub Group to assess implementation of socio-economic packages under implementation

	economic packages under implementation in atleast three revenue villages as mentioned at specific condition Sl. No. (ix) above.	in atleast three revenue villages.
(xxxii)	M/s BHP / M/s SAIL shall provide advance intimation (for a visit of the Sub-Group) to the Ministry atleast three months before completion of two years from the date of issues of this environmental clearance.	SAIL, BSP shall facilitate visit of Sub Group to assess implementation of socio-economic packages under implementation in atleast three revenue villages.

B. GENERAL CONDITIONS

	General Condition	Status
(i)	No change in mining Technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	No change in mining Technology and scope of working .
(ii)	No change in the calendar plan including excavation, quantum of mineral and waste should be made.	Shall be followed.
(iii)	Fugitive dust emissions from all the sources should be controlled, regularly monitored and data recorded properly. Water spraying arrangements on haul roads, wagon loading, dump; trucks (loading & unloading) points should be provided and properly maintained.	All measures to avoid fugitive dust emission is being taken. Monitoring being done and documentation of all parameters is being regularly maintained.
(iv)	Four ambient monitoring, stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO_2, NO_x 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.	It is established and are being maintained.
(v)	Data on ambient air quality (RPM, SPM, SO_2, NO_x) should be regularly submitted to the Ministry including its Regional Office at Bhopal and the State Pollution Control Board and the Central Pollution Control Board once in six months.	Being submitted. (Annexure-I)
(vi)	Adequate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations of HEMM, etc., should be provided with ear plugs/muffs	Noise control measure is being taken. Noise level of equipment is enclosed.. (Annexure-II).
(vii)	Industrial wastewater (Workshop and wastewater from 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.	ETP has been Installed. Industrial waste water (Workshop) and wastewater from mine, samples are within norms as per standard conditions. Oil and grease trap provided.
(viii)	Vehicular emissions should be kept under control and regularly monitored. Vehicles used for transporting the mineral should be covered with tarpaulins and optimally loaded.	Vehicular emissions are kept under control. mineral transporting vehicles are loaded optimally .
(ix)	Environmental laboratory should be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.	In-house pollution monitoring is being done at Hirri Mine and samples are being sent to IOC Rajhara Environmental Laboratory for analysis.
(x)	Personnel working in dusty areas should wear protective respiratory devises and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance programme of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	OHIS of Bhilai Steel Plant is carrying out occupational health surveillance. Occupational health surveillance Programes conducting as per norms. Personnel working in dusty areas are provided with protective respiratory devices and training & re-training programes are being organized.
(xi)	A separate environmental management cell with suitable	Separate environmental management cell

कार्यालय उपमहाप्रबंधक (पर्यावरण एवँ लीज़)
पर्यावरण प्रबोधन प्रयोगशाला भिलाई इस्पात संयंत्र खान
लौह अयस्क समूह, राजहरा

क्र. खान/लौअस/पर्या/31–(4)/2018/ 517 दिनाँक : 07.03.2018

SUB: ENVIRONMENTAL MONITORING REPORT OF **HIRRI DOLOMITE MINE** FOR THE MONTH OF **FEBRRUARY - 2018.**

REF:
1. Consent granted under Section-21 of Air (Prevention & Control of Pollution) Act-1981 vide No. 761/TS/CECB/2010; Raipur, dated: 03.05.2010.
2. Consent granted under Section-25/26 of Water (Prevention & Control of Pollution) Act-1974 vide No. 759/TS/CECB/2010; Raipur, dated: 03.05.2010.

Please find enclosed herewith the monthly Environment Monitoring Reports of **Hirri Dolomite Mine** for the month of **February - 2018** as under-

Sl. No.	SAMPLING PARAMETER	REMARKS	SUGGESTED MEASURES
A	Core Zone Air Quality (Industrial Area)	Within acceptable limit.	-
B	Buffer Zone Air Quality (Industrial & mixed Area)	Within acceptable limit.	-
C	Drinking Water Quality	Within acceptable limit.	-
D	Effluent Water Quality	Within acceptable limit.	-
E	Ground Water Level & Quality	Within acceptable limit.	-
F	Ambient Noise	Within acceptable limit.	-
G	Work Zone Noise	Sound pressure level beyond acceptable limit at Drill Machines.	Noise control systems to be improved & made effective; where not possible, PPEs to be used.

7/3/2018
प्रभारी, पर्यावरण प्रयोगशाला

वरिष्ठ प्रबंधक (पर्यावरण) 7.3.18

प्रति :

खान प्रबंधक–हिर्री डोलोमाइट खान

प्रतिलिपि :

1. डीजीएम (टेक.) खान मुख्यालय, भिलाई
2. डीजीएम (ई.एम.डी), कोलकाता
3. उपमहाप्रबंधक (पर्यावरण एवँ लीज़)

टीप : पर्यावरण प्रतिवेदन केवल ई–मेल के द्वारा भेजा जा रहा है। कृपया पर्यावरण संरक्षण में सहयोगी बनें। कागज बचाएँ, पर्यावरण बचाएँ।

ANNEX- I

(A). CORE ZONE AIR QUALITY (INDUSTRIAL AREA) (Unit : µg/M^3)

S. No.	Locations	WORKSHOP	CRUSHER	QUARRY-1	QUARRY-4	Remarks
		Suspended Particulate Matters (µg/m^3)				
1	27-Feb-18		681.90			
2	28-Feb-18	214.60				

(B). BUFFER ZONE AIR QUALITY (INDUSTRIAL & MIXED USE AREA) (Unit : µg/M^3)

S.No.	Parameter	PM-10	PM 2.5	NOx	SO_2	CO	PM-10	PM 2.5	NOx	SO_2	CO	PM-10	PM 2.5	NOx	SO_2	CO	Remarks
	Norms as per NAAQS →	*100*	*60*	*80*	*80*	*4000*	*100*	*60*	*80*	*80*	*4000*	*100*	*60*	*80*	*80*	*4000*	
Locations		CHHATONA VILLAGE					Guest House										
1	27-Feb-18	48.40	28.70	10.46	8.26	BDL	36.24		6.52	5.84							

Note : Read CO in PPM; BDL stands for 'Below detectable limit'

(C). DRINKING WATER QUALITY (Norms as per Indian Standards - 10500 : 2012, Second Revision)

Date	Sl.No.	Parameter	Requirement (Acceptable Limits)	Permissible limit in the absence of alternate source	Stations		Remark
					Borewell-1	Borewell-2	
	1	Colour, Hazen units, *Max*	*5*	*15*	ND	ND	
	2	pH Value	*6.5 - 8.5*	*No relaxation*	7.63	7.66	
	3	Turbidity, NTU, *Max*	*1.00*	*5.00*	0.39	0.46	
	4	Total Dissloved Solids, mg/l, *Max*	*500.0*	*2000.0*	14.0	14.0	
	5	Barium (as Ba), mg/l, *Max*	*0.7*	*No relaxation*	ND	ND	
	6	Boron (as B), mg/l, *Max*	*0.5*	*1.0*	ND	ND	
	7	Calcium (as Ca), mg/l, *Max*	*75.0*	*200.0*	20.0	18.0	
	8	Chloride (as Cl), mg/l, *Max*	*250*	*1000*	1.7	1.9	
	9	Copper (as Cu), mg/l, *Max*	*0.05*	*1.5*	BDL	BDL	
	10	Fluoride (as F), mg/l, *Max*	*1.0*	*1.5*	BDL	BDL	
	11	Free Residual Chlorine, mg/l, *Minimum*	*0.2*	*1.0*	ND	ND	
	12	Iron (as Fe), mg/l, *Max*	*0.3*	*No relaxation*	0.07	0.09	
	13	Magnesium (as Mg), mg/l, *Max*	*30.0*	*100.0*	23.0	21.0	
	14	Manganese (as Mn), mg/l, *Max*	*0.1*	*0.3*	ND	ND	
	15	Nitrate (as NO_3), mg/l, *Max*	*45.0*	*No relaxation*	2.6	2.2	
	16	Phenolic Compounds (as C_6H_5OH), mg/l, Max	*0.001*	*0.002*	ND	ND	
	17	Silver (as Ag), mg/l, *Max*	*0.1*	*No relaxation*	ND	ND	
	18	Sulphate (as SO_4), mg/l, *Max*	*200.0*	*400.0*	9.2	7.8	
	19	Sulphide (as H_2S), mg/l, *Max*	*0.05*	*No relaxation*	BDL	BDL	
	20	Total Alkalinity as cal.carbonate, mg/l, *Max*	*200.0*	*600.0*	41.0	47.0	
	21	Total Hardness (as $CaCO_3$), mg/l, *Max*	*200.0*	*600.0*	188.0	197.0	
	22	Zinc (as Zn), mg/l, *Max*	*5.0*	*15.0*	ND	ND	
	23	Cadmium (as Cd), mg/l, *Max*	*0.003*	*No relaxation*	ND	ND	
	24	Cyanide (as CN), mg/l, *Max*	*0.05*	*No relaxation*	ND	ND	
	25	Lead (as Pb), mg/l, *Max*	*0.01*	*No relaxation*	ND	ND	
	26	Mercury (as Hg), mg/l, *Max*	*0.001*	*No relaxation*	ND	ND	
	27	Nickel (as Ni), mg/l, *Max*	*0.02*	*No relaxation*	ND	ND	
	28	Total Arsenic (as As), mg/l, *Max*	*0.01*	*0.05*	ND	ND	
	29	Total Chromium (as Cr), mg/l, *Max*	*0.05*	*No relaxation*	ND	ND	

(D). EFFLUENT WATER QUALITY (Norms Under Section 25/26 of Water (Prevention & Control of Pollution) Act-1974 & MoEF Notification 4-Oct-2010.

Date	Sl.No.	Parameter	STATIONS (Inland Surface Water)				STATIONS (Public Sewers)	
			Acceptable Limits	Quarry-1	Quarry-4	ETP Workshop	Acceptable Limits	Township Sewerage
28-Feb-18	1	Colour and Odour	*	ND	ND	No Discharge	*	No Discharge
	2	Suspended Solids, mg/l, Max.	100 **	8.0	11.0		600.0	
	3	pH Value	5.5 to 9.0	7.64	7.72		5.5 to 9.0	
	4	Temperature (°C)	***	23.0	23.0		-	
	5	Oil & Grease, mg/l, Max.	10.0	BDL	BDL		20.0	
	6	Free Ammonia (as N), mg/l, Max	50.0	ND	ND		50.0	
	7	Biochemical Oxygen Demand (3 days at 27°C), mg/l, Max.	30.0	4.0	4.0		350.0	
	8	Chemical Oxygen Demand, mg/l, Max.	250.0	6.0	6.0		250.0	
	9	Arsenic (as As), mg/l, Max.	0.2	ND	ND		0.2	
	10	Lead (as Pb), mg/l, Max.	0.1	ND	BDL		1.0	
	11	Copper (as Cu), mg/l, Max.	3.0	BDL	BDL		3.0	
	12	Zinc (as Zn), mg/l, Max.	5.0	ND	ND		15.0	
	13	Fluoride (as F), mg/l, Max.	2.0	BDL	BDL		15.0	
	14	Sulphide (as S), mg/l, Max.	2.0	BDL	BDL		-	
	15	Manganese (as Mn), mg/l, Max.	2.0	BDL	BDL		2.0	
	16	Iron (as Fe), mg/l	3.0	0.11	0.09		3.0	

* All efforts should be made to remove colour and unpleasant odour as far as practicable.

** Acceptable limit for TSS - 50 mg/l (for non-rainy day) & 100 mg/l (for rainy day) as per MoEF Notification 4th Oct-2010 for Inland Surface Water.

*** Shall not exceed 5°C above the receiving water temperature.

(E). GROUND WATER QUALITY & LEVEL (Norms as per Indian Stnadards - 10500 : 2012, Second Revision)

Date	Sl.No.	Parameter	Requirement (Acceptable Limits)	Permissible limit in the absence of alternate source	STATIONS			
					Chhatona Village	Bodsara Village	Pendridih Village	Achanakpur Village
28-Feb-18	1	Colour, Hazen units, Max	5	15	ND	ND	ND	ND
	2	pH Value	6.5 - 8.5	No relaxation	7.07	7.14	7.38	7.24
	3	Turbidity, NTU, Max	1.00	5.00	1.10	1.25	1.06	1.18
	4	Total Dissloved Solids, mg/l, Max	500.0	2000.0	8.0	10.0	9.0	12.0
	5	Barium (as Ba), mg/l, Max	0.7	No relaxation	ND	ND	ND	ND
	6	Boron (as B), mg/l, Max	0.5	1.0	ND	ND	ND	ND
	7	Calcium (as Ca), mg/l, Max	75.0	200.0	23.0	19.0	28.0	22.0
	8	Chloride (as Cl), mg/l, Max	250	1000	3.2	4.1	4.0	3.9
	9	Copper (as Cu), mg/l, Max	0.05	1.5	BDL	BDL	BDL	BDL
	10	Fluoride (as F), mg/l, Max	1.0	1.5	BDL	BDL	BDL	BDL
	11	Free Residual Chlorine, mg/l, Min	0.2	1.0	ND	ND	ND	ND
	12	Iron (as Fe), mg/l, Max	0.3	No relaxation	0.09	0.06	0.07	0.06
	13	Magnesium (as Mg), mg/l, Max	30.0	100.0	20.0	18.0	22.0	14.0
	14	Manganese (as Mn), mg/l, Max	0.1	0.3	ND	ND	ND	ND
	15	Nitrate (as NO_3), mg/l, Max	45.0	No relaxation	4.2	6.1	5.0	5.0
	16	Phenolic Compounds (as C_6H_5OH), mg/l, Max	0.001	0.002	ND	ND	ND	ND
	17	Silver (as Ag), mg/l, Max	0.1	No relaxation	ND	ND	ND	ND
	18	Sulphate (as SO_4), mg/l, Max	200.0	400.0	17.2	15.0	9.6	18.0
	19	Sulphide (as H_2S), mg/l, Max	0.05	No relaxation	BDL	BDL	BDL	BDL
	20	Total Alkalinity as cal.carbonate, mg/l, Max	200.0	600.0	51.0	67.0	57.0	60.0
	21	Total Hardness (as $CaCO_3$), mg/l, Max	200.0	600.0	115.0	122.0	163.0	178.0
	22	Zinc (as Zn), mg/l, Max	5.0	15.0	ND	ND	ND	ND
	23	Cadmium (as Cd), mg/l, Max	0.003	No relaxation	ND	ND	ND	ND
	24	Cyanide (as CN), mg/l, Max	0.05	No relaxation	ND	ND	ND	ND
	25	Lead (as Pb), mg/l, Max	0.01	No relaxation	ND	ND	ND	ND
	26	Mercury (as Hg), mg/l, Max	0.001	No relaxation	ND	ND	ND	ND
	27	Nickel (as Ni), mg/l, Max	0.02	No relaxation	ND	ND	ND	ND
	28	Total Arsenic (as As), mg/l, Max	0.01	0.05	ND	ND	ND	ND
	29	Total Chromium (as Cr), mg/l, Max	0.05	No relaxation	ND	ND	ND	ND
Ground Water level from surface (Meter)					8.800	Dry - more than 21.33	Dry- more than18.28mete	1.600

* Read Copper in µg/l in actual

ANNEX-II

(F). AMBIENT NOISE LEVEL

S.No.	Location→	Chhatona Village		Pendridih village		Bodsara Village		Rahengi Village		Remarks
	Parameter→	Leq.		Leq.		Leq.		Leq.		
	Norms as per Noise Pollution (Regulation & Control) Rules-2000 →	Day	Night	Day	Night	Day	Night	Day	Night	
		75 dB (A)	*70 dB (A)*	*75 dB (A)*	*70 dB (A)*	*75 dB (A)*	*70 dB (A)*	*75 dB (A)*	*70 dB (A)*	
1	27-Feb-18	48.4	41.0	49.1	42.6	48.7	43.0	50.2	44.6	

(K). WORK-ZONE NOISE

S.No.	Date	Location	Parameter	Norm (as per Factory Act-1948)	Actual	Remark
1	27-Feb-18	**QUARRY AREA**				
		1. Volvo EC 210 BLC				
		a. Operator level	Leq.	*90 db (A)*	86.4	
		b. Ground level	Leq.	*90 db (A)*	88.7	
		2. Drill Machine No. 5				
		a. Operator level	Leq.	*90 db (A)*	92.4	
		b. Ground level	Leq.	*90 db (A)*	95.4	
		3. Hy. Shovel, L&T Komat'su, PC-450 LC, No.14				
		a. Operator level	Leq.	*90 db (A)*	72.3	
		b. Ground level	Leq.	*90 db (A)*	68.6	
		4. Hy. Shovel, L&T Komat'su Avance, PC 200				
		a. Operator level	Leq.	*90 db (A)*	78.2	
		b. Ground level	Leq.	*90 db (A)*	76.4	
		5. Drill Machine, Atlas Copco ICM, No.06				
		a. Operator level	Leq.	*90 db (A)*	21.7	
		b. Ground level	Leq.	*90 db (A)*	89.5	
		6. AMW CG 10 Z 0627, Operator Level	Leq.	*90 db (A)*	71.6	
		7. AMW CG 10 Z 0630, Operator Level	Leq.	*90 db (A)*	69.8	
		8. Tipper, CG 10 C 8195, Operator Level	Leq.	*90 db (A)*	84.7	
		9. Tipper, CG 10 R 1166, Operator Level	Leq.	*90 db (A)*	85.3	
		10. Tipper, CG 10 C 3953, Operator Level	Leq.	*90 db (A)*	84.8	