

TELANGANA STATE MINERAL
DEVELOPMENT CORPORATION LIMITED
(A State Government Undertaking)



P.O. Devapur Cement Works – 504 218,
Dist. Mancherial (T.S)
Phone : 91-08736 – 240661,
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ORCEM/TSMDC:2020-21: 247

Date: 15/09/2020

The Member Secretary
Telangana State Pollution Control Board
Paryavarana Bhavan, A-3
Industrial Estate
Sanath Nagar
HYDERABAD – 500 018.

Sub: - Submission of Form – V (Environment Statement) of Devapur Limestone Mines of M/s. Telangana State Mineral Development Corporation Ltd, for the year 2019-2020 regarding.

Dear Sir,

We are here with submitting Form – V (Environment Statement-Mines) of Devapur Limestone Mines of M/s. Telangana State Mineral Development Corporation Ltd, Telangana for the year 2019 – 2020.

This is for your kind information and records please.

Thanking you sir,

Yours faithfully,
For Devapur Limestone Mine.,
Of M/s. TSMDC Ltd.,


MINES MANAGER

Encl.: As above

CC to

Environment Engineer
Telangana State Pollution Control Board
H.No. 6-2-166/A, 1st Floor
Subhash Nagar
NIZAMABAD-503002
Telangana (State)

Regd. & Corpt office : Rear Block, 4th floor, HMWSSB Premises, Khairatabad, Hyderabad – 500 004.
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FORM - V

ENVIRONMENTAL STATEMENT

FOR THE FINANCIAL YEAR 2019-2020



By

DEVAPUR LIMESTONE MINES

M/s. TSMDC Ltd.

PO: Devapur Cement Works, Kasipet (M),
Dist.: Mancherial (Dist) – Telangana - 504218

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PART – A		

- i) Name and address of the owner : **Dr. G. Malsur**
Vice Chairman & Managing Director
DEVAPUR LIME STONE MINE,
Devapur (V), Kasipet (M),
Mancherla (Dist.)
- Occupier of the industry operation or process.
- ii) Date of the last environmental : 11th September- 2019
audit report submitted
- iii) Production Capacity : 5.3 Million Ton /year - Lime stone
- iv) Year of Establishment : 1981

PART – B

WATER AND RAW MATERIAL CONSUMPTION

	2018-19	2019-2020
i) Total water consumption m³/day:	102.37	136.65
1. Dust suppression :	47.31	61.76
2. Plantation & Greenbelt :	47.80	65.04
3. Domestic :	7.26	9.84
<hr/>		
Water consumption per unit of product (KL/MT)		
<hr/>		
Name of Product	During the previous financial year (2018-2019)	During the current financial year (2019-2020)
<hr/>		
Limestone	0.00883 KL/MT of Limestone	0.01302 KL / MT of Lime Stone
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ii) Raw material consumption:

Name of Raw Materials	Name of product	Consumption of raw material per MT of output Lime Stone	
		During the previous Financial year (2018-2019)	During the current Financial year (2019-2020)

HSD	Lime Stone	0.323 L /MT	0.325 L/MT
Explosives	Lime Stone	0.096 Kg/MT	0.089 Kg /MT

PART - C

POLLUTION DISCHARGED TO ENVIRONMENT

(Parameters as specified in the consent issued)Pollutants	Quantity of Pollutants Discharged (kg/day)	Concentrations Of Pollutants in Discharges (mg/L)	Percentage of variation from prescribed standards with reasons
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a) Waste Water – 2019-2020

S. No		Units	Limits	Avg	Avg
				<i>I</i>	<i>II</i>
1	PH		6.5-8.5	7.5	7.6
2	Total dissolved solids	mg/L	2100	853.2	727.4
3	Total Suspended solids	mg/L	200	35.5	25.2
4	Chemical oxygen demand	mg/L	-	43.0	23.5
5	Biochemical oxygen demand	mg/L	100	12.5	5.7
6	Oil & Grease	mg/L	10	0.9	0.7
7	Dissolved Phosphates	mg/L	5	1.2	1.0
8	Zine	mg/L	5	0.8	0.7

I Battery Discharge effluent

II Oil Separator outlet

b) Air

Emission Values Average are in $\mu\text{m}/\text{m}^3$ - (2019-2020)						
Location Name	PM-10	PM-2.5	SO ₂	NO _x	Lead (Pb)	Carbon monoxide (Co)
Devapur Village	63.8	23.8	11.1	21.3	0.1	BDL
Devapur Forest Area	45.9	16.5	7.3	16.6	0.1	BDL
Gatlarapalli Village	51.3	17.9	8.3	17.4	0.0	BDL
Maddimadugu Check post	63.5	24.8	11.4	22.6	0.1	BDL
Loading Point	73.6	26.8	10.2	22.7	0.1	BDL
Unloading Area	76.1	28.2	11.8	23.6	0.1	BDL
Drilling Area	71.2	25.9	8.9	19.3	0.1	BDL
Haulage Road	66.6	23.3	11.5	23.3	0.1	BDL
Location Name	Ammonia (NH ₃)	Ozone (O ₃)	Benzene (C ₆ H ₆)	Arsenic (As)	Nickel (Ni)	Benzo pyrene (Bap)
Devapur Village	BDL	7	<0.02	ND	ND	ND
Devapur Forest Area	BDL	4.3	<0.02	ND	ND	ND
Gatlarapalli Village	BDL	4.9	<0.02	ND	ND	ND
Maddimadugu Check post	BDL	8.6	<0.02	ND	ND	ND
Loading Point	BDL	6.8	<0.02	ND	ND	ND
Unloading Area	BDL	10.3	<0.02	ND	ND	ND
Drilling Area	BDL	7.2	<0.02	ND	ND	ND
Haulage Road	BDL	9.6	<0.02	ND	ND	ND

Stack Attached to	Pollutant	Pollutants in Emissions discharged (kg/day) 2018-2019	Concentrations Of Pollutants in Emissions (mg/ N m ³) 2019-2020	Percentage of variation from prescribed standards with reasons
Crusher	SPM	46.58	24.33	-78.84%

PART – D

HAZARDOUS WASTE

(As specified under hazardous wastes/Management and handling rules, 2016)

Hazardous wastes	Total Quantity per Year	
	During the previous Financial year (2018-2019)	During the current Financial year (2019-2020)
a) From Process		
i) Used Oil	8200 Liters	5200 Liters
b) From Pollution control facilities	Nil	Nil

PART - E

SOLID WASTES

S.No	Solids Waste	Total quantity	
		During the previous Financial year (2018-2019)	During the current Financial year (2019-2020)
(a) From Process			
	Top soil generating in mining operation	4341	NIL
(b) From Pollution Control Facility		-NA-	-NA-
(c) 1. Quantity recycled or re-utilized		375215 Ton	418647
2. Sold		Nil	Nil
3. Disposed		992225 Ton	667953 Ton

PART - F

Please specify the characteristics (in terms of concentration and quantum) of Hazardous as well as solid wastes and indicates disposal practice adopted for both these categories of wastes.

Hazardous waste generated during maintenance of HEMM used for mining operation is in the form of used oil and old batteries. Used oil thus generated is being disposed off to CPCB authorized recyclers only. Old batteries are disposed off on buy back basis.

Solid waste as top soil generated during mining operation is directly used in greenbelt developments. Other overburden and waste rock generated during mining operation is used for backfilling of mined out area for carrying out reclamation and rehabilitation.

S. No.	Year	Reclamation & Rehabilitation in Ha	
		By Backfilling	By Afforestation
1	2018-19	0.95	1.03
2	2019-20	1.513	0.94

PART – G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production

Low grade limestone and sub-grade limestone mineral is used in the manufacturing process thus conserving the natural resources. Reclamation of mined out area and development of water storage reservoirs is done to facilitate increase in water regime in mined out areas.

PART - H

Additional investment for environmental protection including abatement of pollution.

Rs. **95.08 Lakhs** (Rupees Ninety Five Lakh and Eight Thousand only) was spent towards environmental monitoring and its protection expenses.

S.NO.	NATURE OF WORK	YEAR		REMARKS
		2018-19	2019-20	
1	Water Sprinkling on Haulage roads	23.76	30.97	Water Sprinkling by Water Tanker
2	Air, Water & Noise monitoring	7.14	12.24	Sampling in Core and Buffer Zones
3	Electricity charges for Pumps	8.52	14.90	For Bore Wells and Booster Pumps
4	Maintenance of Gardens near Mines office & Garage	12.49	11.43	Labour Charges
5	Maintenance & watering of Plantation in Mines and along roads	16.17	17.51	Water Tanker Charges
6	Civil and maintenance charges	2.27	3.74	Repair / laying of new Pipe line and maintenance of garden. Cost of Pipes,
7	Plantation Expenses as per State Govt guidelines under Haritha-Haram Program.	7.65	4.28	Bag filters, operation and maintenance cost.
		78.03	95.08	

PART – I

Any other particulars in respect of environment protection and abatement of pollution.

In Devapur limestone mine, so far total plantation of **48182** saplings was carried out covering an area of **53.935** ha. In the year 2020-21 as per mining plan we have planned to plant **830 nos. of saplings** . Forming pits, retaining tanks and bunds in the mining area, improve water resources. Water harvesting pits were dug in the adjoining area. For noise pollution control Non electric delay detonators are used. Over and above greenbelt is developed along the boundary of mine area for reducing the impact of noise due to mining activity on the surrounding Environment. Regular water sprinkling is done at mine face and haulage roads to suppress dust. Conservation of resources is done as per the approved mining plan.

1. Year wise plantation details till 2018-19 and accordingly area covered are given in following table–

Year	Area in Ha	Plantation in Numbers
Up to 2018-19	1.03	2350
2019-20	0.94	1230

World Environment Day Celebrations -2020

World Environment Day 2020 was celebrated at Orient Cement Limited, Devapur in a befitting manner. Theme for World Environment day was: “**Bio Diversity**”. In view of COVID – 19 pandemic, The World Environment Day 2020 program was organized in a safe and simple manner. It was started with speech on Environment and Biodiversity by **President (Manufacturing) and Sr. Vice President (Works)**, prize distribution to online quiz winners and further participated in the plantation at the specified location in the Mines.

WORLD ENVIRONMENT DAY – 2020 CELEBRATION



Welcome Address by Head (EHS)



Speech by President (Manufacturing)



Plantation by President (Manufacturing)



Plantation by Sr. VP (Works)

WORLD WATER DAY – 2020 CELEBRATIONS

World Water Day – 2020 has been celebrated in benefitted manner. We have organized awareness sessions among employees and colony people.



Awareness Program among Employees



CSR Activities:

S.No.	Activity	Rs. In Lacs	Detailed expenditure of Activity
1.	RO Water supply to villagers; Water harvesting pits in nearby villages;	4.31	RO Water supply - Rs. 0.75 Lacs Making Water pits in 6 Nos Village near plant - Rs. 3.34 Lacs Making Harvesting pits in Peddagudam at Devapur Village - Rs. 0.22 Lac
2.	Regular medical checkup of mine employees	1.19	Contract workmen - 133 nos & Management & Wage board - 66 nos; Total 199 nos @ Rs. 600/- per person.
3.	To conduct health checkup camps for villagers, expenses for sulabh shouchalaya, dispensary expenses	98.37	Medical expenses at Dispensary - Rs. 86.11 Lac Maint. Of Sulabh Complex - Rs. 2.22 Lac [Sulabh complex - 10000 Nos (5000 trucks movement in a year * 2 persons)]; Ambulance service - Rs. 10.04 Lacs
4.	Classess conducted for skill development and vocaional training	1.22	Details received from Manohara Malem, VT Officer - 130 beneficiaries
5.	School running expensess, repairing & providing facilities to nearby govt. schools	374.32	School Running Expenses - Rs. 367.95 Lac Const at asrama girls school at devapur village - Rs. 1.48 Lac Making flooring work in front of Varandah at MPPS High school Devapur - Rs. 2.13 Lac Snacks for ashram & zpss school children - Rs. 0.01 Lac Flooring work school at maddimada village - Rs. 0.89 Lac Painting work primery sch at maddimada village - Rs. 0.11 Lac Const at tribal walfare primery school-devapur - Rs. 0.62 Lac Const at flooring & window mess primery school-devapur - Rs. 1.13 Lac
6.	Community devleopment of surrounding villages & recreation activities	13.78	Community development at gatrapalle village - Rs. 0.44 Lac Const at dhyan kendra at eppalagudam village - Rs. 0.08 Lac Making of dhyankendra - peddapur, Thati, Thunga gudam village - Rs. 4.29 Lac Making pathway and slab work dhyankendra at Maddimada - Rs. 3.20 Lac Const & Painting at dhyan kendra at devapur village - Rs. 4.75 Lac Painting work at dhyankendra -

			salpalavagu - Rs. 0.52 Lac Painting work at MPP office kazipet village - Rs. 0.50 Lac
7.	Donation to vanavasi kalyan ashram	1.74	Vanavasi Kalyan Parishad - Rs. 1.74 Lac
8.	ESI hospital rent & repairs; Road repairs of surrounding villages, infrastructure development of gram panchayat office; transportation facility to school children & workers	65.90	ESI hospital maint. - Rs. 1.80 Lac Furniture for gram panchayath village gatrappalle - Rs. 0.65 Lac Road repair and cleaning work at devapur village - Rs. 3.76 Lac Road repair work at maddimada village - Rs. 0.68 Lac Levelling and dressing Thurum gudam, Ippala gudam, Gondu, maddimada godum villages - Rs. 0.35 Lac Hire charges of JCB for removing of soil from nala at Devapur Village - Rs. 2.31 Lac Bus for Mancheri School Children - Rs. 9.80 Lac Bus for Mancheri/Devapur transport Service for Wage Board Employees - Rs. 14.93 Lac Bus for Mancheri/Devapur transport Service for Contract Labour - Rs. 31.62 Lac
	Total	560.83	

1. INTRODUCTION

M/s. Devapur Lime Stone Mine is catering lime stone for cement plant of **M/s. Orient Cement Ltd.** The present production capacity is 5.3 million tonnes per annum. The mine is located at Devapur (V), Kasipet (M), Manchirai (Dist). of Telangana State.

2. LOCATION

The Devapur Limestone mine is situated in Kasipet mandal, Manchirai district of Telangana State. The mine area is located in the Rally reserve forest, Luxettepet Range, Mancheri Division of Telangana State Forest. The area is located between Latitude 19° 00'15" to 19° 03'16" N and Longitude 79° 18' 30" to 79° 21' 44" E.

The nearest airport is Hyderabad, which is about 300 km away. The nearest railway stations are Mandamarri and Bellampalli towns which are located on the South Central Railway between Kazipet and Ballarshah stations. There is a private siding for the transport of cement wholly

owned by the Cement Company joining the above main line at Mandamarri. This is solely used for transport of cement and clinker. The mine area is 17 km away from the state highway between Mancherial and Bellampalli. Bellampalli town is at a distance of 22 km and Mancherial Distant place is at a distance of 35 km from the mine area.

3. MINING PROCESS

Devapur limestone mine is operated by the method of mechanized open cast mining. The operations are conducted as per the mining plan approved by IBM. The operations involved are:

- i) Drilling of deep blast holes of 150 mm dia using DTH drill machines with matching capacity air compressors. The spacing and burden is 8m and 5m respectively.
- ii) Blasting the holes using slurry explosives and ammonium nitrate-fuel oil mixture.
- iii) The blasted material is loaded into dumpers using excavators.
- iv) The dumpers shall be hauled to the crushing plant located near the pit top. After crushing, the material shall be conveyed to the stockpile in the factory using a belt conveyor (1700 m long and 1 m wide).

B.C soil that covers the limestone deposit is dozed off and separately stacked for afforestation purposes in the worked out top bench around ultimate pit limit and mine avenue roads. This soil is occurring at some places only and is thin. A list of mining machinery used at Devapur Limestone Mine is furnished in below table .

List of Mining Machine

Description of Equipment	Rated Capacity	Engine Capacity	Current deployment (No)	Capacity for 3 Shifts (tons)	Requirement /Adequacy
Major Equipment					
1)Drilling Machine a) Ingersol Rand 4" b) HRB 150 & IBH10 with Air Compressors c) CP Ravathi	115 mm dia 150 mm dia 150 mm dia	180 HP 216 HP 320 HP	1 1 1	100 m 120 m 200 m	Current deployment is quite adequate for the planned capacity.
2) Excavator for Loading Hydraulic Excavator T/Hitachi-350 T/Hitachi-370 Kobelco- 350, Kobelco- 380	1.7 cu.m bucket capacity 2 cu.m bucket capacity	250 HP 270 HP 270 HP 280 HP	2 1 2 2	20000 TPD	
3) Tippers 17 tonner capacity /trip /vehicle	17 T capacity	165 HP	28	20000TPD	
4) Vibro Ripper	30 MT	250 HP	1	100 TPH	
5) Rock breaker	Attachment with 210 Excavator	168 HP	1	40 TPH	Adequate
6) Road Compactor	L & T Make	102 HP	1	-----	Adequate
7) Dozer	BEML-D155	324 HP	2	1350 TPH	Adequate

Other Equipment					
1.Mobile Lighting Tower	In each tower having 5no ,MH light fitting	400 Watts	21	Total connected capacity 42000 watts	Adequate
2. Fixed Lighting Tower	In each tower having 6 no of 2, MH light fitting	400 Watts	2	Total connected capacity 960 watts	Adequate
3. Mobile Maintenance Van	12 Ton 3 Ton 2 Ton	108 HP 75 HP 46 HP	1 1 1	-----	Adequate
4. Water tanker	12 KL	114 HP	3	-----	Adequate
5. De - Watering Pump	100 HP	100 HP	6	-----	Adequate (including 3 Nos stand by)
6. Jeeps	Bolero jeep and camper	46 HP	4	-----	Adequate
7. Explosive Van	3 Ton 6 Ton	23.3 HP 67.5 HP	1 1	----- -----	Adequate

4. WATER ENVIRONMENT

Atmospheric precipitation in the form of rain is the only source for both surface water and ground water in the mining area. Presently, no groundwater is drawn, all the water quantity required for mines for dust suppression, green belt development etc is being met from mines rain water harvesting sump. Water quality testing is carried out with the help of MOEF certified third party laboratory on quarterly basis. Water levels are being recorded in two open wells of buffer zone and two piezometers are constructed in mines area as per recommendations of Central Ground Water Board (CGWB). The water quality data is presented in below tables.

The data thus collected for water quality shows that all the samples meet the standards prescribed by statutory authorities.

AVERAGE VALUES OF WATER ANALYSIS 2019-2020

Locations	1			2			3		
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Colour (Hazen units)	4	6	4.75	2	4	3.3	<01	<01	<01
Turbidity (NTU)	8.2	9.2	8.7	2.7	2.9	2.8	0.3	0.5	0.4
pH	7.42	7.61	7.5	7.14	7.5	7.3	7.36	7.66	7.5
E.C. (Micromhos/cm)	817	935	880.5	989	1075	1026.8	1078	1260	1174.8
Total dissolved solids	509	582	548.3	608	661	631.3	637	744	693.8
Phenolphthalein alkalinity as CaCO ₃	0	0	0	0	0	0.0	0	0	0.0
Methyl orange alkalinity as CaCO ₃	311	356	335.3	284	309	295.0	250	292	272.5
Total hardness as CaCO ₃	312	357	336.3	372	404	386.0	312	365	340.0
Calcium as Ca	76	87	82.0	110	120	114.3	81	95	88.5
Magnesium as Mg	29.65	34.05	31.9	23.57	25.18	24.3	26.6	30.39	28.6
Sodium as Na	60	68	64.3	59	64	61.3	102	119	111.0
Potassium as K	2.66	3.05	2.9	2.33	2.53	2.4	3.43	4.01	3.7
Chloride as Cl	63	72	67.8	105	114	109.0	154	180	167.8
Sulphate as SO ₄	46	53	49.8	52	57	54.3	56	66	61.3
Nitrate as NO ₃	17	19	18.0	20	22	21.0	20	24	22.3
Carbonates as CaCO ₃	0	0	0.0	0	0	0.0	0	0	0.0
Bicarbonates as CaCO ₃	380	435	409.5	346	376	359.3	305	356	332.0
Residual Chlorine	0.14	0.16	0.2	0.44	0.48	0.5	0	0.04	0.0
Copper as Cu	0.06	0.08	0.1	<0.01	<0.01	<0.01	0.02	0.04	0.0
Manganese as Mn	0.04	0.06	0.0	<0.01	<0.01	<0.01	0.07	0.09	0.1
Iron as Fe	0.28	0.35	0.3	0.19	0.24	0.2	0.19	0.24	0.2
Fluoride as F	0.76	0.87	0.8	0.7	0.85	0.8	0.51	0.58	0.5

1. Open well (Near Devapur Vagu)

2. Open well (Devapur Village)

3. Bore well Water(Maddimadugu)

Note: All the values except pH, E.C, Turbidity & colour are expressed in mg/L.

AVERAGE VALUES OF WATER ANALYSIS 2019-2020

Locations	4			5			6		
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Colour (Hazen units)	4	6	3.5	0	0	0.0	<01	<01	<01
Turbidity (NTU)	8.2	9.2	0.5	0	0	0.0	0.3	0.5	0.4
pH	7.4	7.6	7.4	7.38	7.52	7.5	7.38	7.56	7.5
E.C. (Micromhos/cm)	817.0	935.0	1254.0	185	216	200.5	1097	1296	1210.8
Total dissolved solids	509.0	582.0	770.0	100	117	108.5	649	766	716.0
Phenolphthalein alkalinity as CaCO ₃	0.0	0.0	0.0	0	0	0.0	0	0	0.0
Methyl orange alkalinity as CaCO ₃	311.0	356.0	161.5	33	60	46.0	350	413	386.0
Total hardness as CaCO ₃	312.0	357.0	464.3	70	82	76.0	386	457	426.8
Calcium as Ca	76.0	87.0	136.3	17	21	19.3	122	145	135.3
Magnesium as Mg	29.7	34.1	30.0	6.3	6.74	6.6	19.68	22.99	21.6
Sodium as Na	60.0	68.0	59.5	11	13	12.0	41	49	45.8
Potassium as K	2.7	3.1	2.6	0.54	0.64	0.6	1.21	1.44	1.3
Chloride as Cl	63.0	72.0	213.0	18	21	19.5	67	79	74.0
Sulphate as SO ₄	46.0	53.0	213.5	15	17	16.0	58	68	63.8
Nitrate as NO ₃	17.0	19.0	14.2	4.19	4.91	4.6	28	33	30.8
Carbonates as CaCO ₃	0.0	0.0	0.0	0	0	0.0	0	0	0.0
Bicarbonates as CaCO ₃	380.0	435.0	197.0	62	73	67.5	428	550	483.3
Residual Chlorine	0.1	0.2	0.0	0	0	0.0	0	0	0.0
Copper as Cu	0.1	0.1	0.1	<0.01	<0.01	<0.05	0.04	0.07	0.1
Manganese as Mn	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.03	0.0
Iron as Fe	0.3	0.4	0.2	0.17	0.21	0.2	0.17	0.24	0.2
Fluoride as F	0.8	0.9	0.6	0.27	0.33	0.3	0.58	0.68	0.6

4. Borewell (Near Magazine)

5. Drinking (Near Crusher)

6. Borewell (Devapur Village)

Note: All the values except pH, E.C, Turbidity & colour are expressed in mg/l

5. POLLUTION CONTROL IN THE MINE

5.1 Pollution control measures

- Formation of Separate Environment cell headed by qualified Environment Engineer, who is directly reporting to top management.
- Green belt development in and around mine by native species.
- Regular dust suppression on haul roads with sprinkler and water tankers.
- Compulsory wet drilling to arrest dust during operation.
- Installation of auto sprinklers to produce mist at crusher for dust suppression.
- Installation of bag filters at crusher for dust control
- Regular monitoring of ambient air, noise, water levels and quality, soil, etc. by MoEF authorized laboratory.
- Dedicated garage for regular maintenance of HEMM
- Installed oil water separator for washing of mine equipment.
- Controlled blasting and regular monitoring of vibration, etc.
- Use of PPE by all workmen in mines like helmet, ear plugs, dust mask, safety shoes, goggles etc.

5.2 Ambient Air Quality

Ambient air quality monitoring is carried out regularly at mines to know the status of the ambient air quality. Ambient air quality is monitored for 24 hours at following locations Near Temple, Near Haulage Road, Crusher site, loading point, Devapur Village, Forest area, Maddimadugu village, Gatlarapalli village, for the estimation of PM₁₀, PM_{2.5}, SO₂, NO₂ and CO. Estimated average values for the parameters monitored is represented in below table & the analyzed values for PM₁₀, PM_{2.5}, SO₂, NO_x are within limits prescribed by TSPCB.

AVERAGE VALUES OF AMBIENT AIR QUALITY DATA
Summary of Ambient Air quality ($\mu\text{g}/\text{m}^3$) 2019-2020

Emission Values Average in $\mu\text{m}/\text{m}^3$						
Location Name	PM-10	PM-2.5	SO ₂	NO _x	Lead (Pb)	Carbon monoxide (Co)
Devapur Village	63.8	23.8	11.1	21.3	0.1	BDL
Devapur Forest Area	45.9	16.5	7.3	16.6	0.1	BDL
Gatlarapalli Village	51.3	17.9	8.3	17.4	0.0	BDL
Maddimadugu Check post	63.5	24.8	11.4	22.6	0.1	BDL
Loading Point	73.6	26.8	10.2	22.7	0.1	BDL
Unloading Area	76.1	28.2	11.8	23.6	0.1	BDL
Drilling Area	71.2	25.9	8.9	19.3	0.1	BDL
Haulage Road	66.6	23.3	11.5	23.3	0.1	BDL
Location Name	Ammonia (NH ₃)	Ozone (O ₃)	Benzene (C ₆ H ₆)	Arsenic (As)	Nickel (Ni)	Benzo pyrene (Bap)
Devapur Village	BDL	7	<0.02	ND	ND	ND
Devapur Forest Area	BDL	4.3	<0.02	ND	ND	ND
Gatlarapalli Village	BDL	4.9	<0.02	ND	ND	ND
Maddimadugu Check post	BDL	8.6	<0.02	ND	ND	ND
Loading Point	BDL	6.8	<0.02	ND	ND	ND
Unloading Area	BDL	10.3	<0.02	ND	ND	ND
Drilling Area	BDL	7.2	<0.02	ND	ND	ND
Haulage Road	BDL	9.6	<0.02	ND	ND	ND

5.3 Waste water Sources and Monitoring

Waste water is generated from cleaning of HEMM.

5.4 Noise Pollution

Noise pollution control measures are adopted at various stages of operation. Noise Levels are measured at various places in the mines by using a sound level meter the results furnished below table.

Noise Levels 2019-2020

Stn Code	Location	Noise Levels dB(A)	
		Day Equiv	Night Equiv
1	Devapur Village	61.75	56.83
2	Devapur Forest Area	54.10	48.63
3	Gatlarapalli Village	59.00	54.10
4	Maddimadugu Check post	63.98	58.90
5	Township (Om Store)	65.23	60.43
6	Core Zone (Near Temple)	65.88	61.45

6. GREENBELT DEVELOPMENT

Greenery/plantation recharges oxygen into environment. Greenbelt development may have the following benefits.

- Mitigation of fugitive emissions
- Noise pollution control
- Improving the local eco-system
- Arresting the soil erosion
- Improving the landscape of the area
- Aesthetics beauty

7. CONCLUSIONS

There are no effluents like mine drainage etc. from the mine area. The water samples collected in and around mine area are meeting the standards as per IS: 10500 – 1991.

Ambient air quality data generated in core zone i.e., mining area and immediate surroundings are observed to be varying between the limits with mining operations i.e., 6 am to 10 pm in a day. These concentrations are remarkably low during night time i.e., 10 pm to 6 am. SO₂ and Nox concentrations are consistent during the whole day hence the SO₂ and NOx emissions due to mining operations are negligible in the area.

Ambient air quality data generated in buffer zone i.e., nearby areas with habitations around the mining area showed consistently very less concentrations for all the parameters analyzed hence there is no impact in the buffer zone due to the mining operations carried out. In a nutshell the mine operation is meeting the overall standards of the statutory authorities.

Signature:

**For, Devapur Limestone Mine
of M/s. TSMDC Ltd.,**


MINES MANAGER