



PRISM
CEMENT
दूर की सोच

Date: 01.12.2019

To,
Regional Office (South Eastern Zone),
Ministry of Environment, Forests and Climate Change,
1st and 2nd Floor, HEPC Building,
No. 34, Cathedral Garden Road,
Nungambakkam,
CHENNAI – 600 034.

Dear Sir,

Sub:- Submission of Six monthly compliance report (April'2019 to September'2019) of environmental clearance of our integrated project – Cement Plant and TPP, Limestone mines spread over in 663.46 ha. Area in villages Kotapadu and Kalvatala, Kolimigundla mandal, Kurnool District, AP.

Ref:- Environmental Clearance letter no. J-11011/166/2008-IA-II (I), dated 09.03.2009 and J-11011/166/2008-IAII (I) dated. 09.03.2016.

Dear Sir,

This is reference to the above we are enclosing herewith the six monthly compliance report of environmental clearance of our Integrated Project – Cement Plant, Limestone Mines and TPP of M/s Prism Johnson Limited, AP. Environmental Monitoring reports for two seasons are enclosed as Annexure – 1A & 1B

Till date company has invested about Rs. 175.94 lakhs under CSR in project core & surrounding villages. Brief report on CSR activities (April'2019 to September'2019) is enclosed as Annexure II.

Thanking you.

Yours faithfully,

For Prism Johnson Limited,
(Shashank Shrivastava)

PRISM JOHNSON LIMITED
(FORMERLY PRISM CEMENT LIMITED)

Cement Division

Project Site Office: Plot No. 610 A-3, Sada Siva Rao Apts, Sada Siva Rao Compound, Near B.H. Mahal, Tadipatri - 515 411. Tel / Fax : 08558-224765
Registered Office: Prism Johnson Limited, 305, Laxmi Niwas Apartments, Ameerpet, Hyderabad – 500 016, Telangana, India. T: +91 -40-2340 0218
Corporate Office: "Rahejas", Main Avenue, V.P.Road,Santacruz (W), Mumbai 400 054, India. Tel. No.: +91 22 667541 42/ 43 /44/45

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CIN: L26942TG1992PLC014033

Project : M/s Prism Cement Limited, Andhra Pradesh
Subject : MOEF Compliance Status Information
Reference : No. J-11011/166/2008–IA–II (I), Dated. 09.03.2016.

(A) SPECIFIC CONDITIONS

Conditions	Compliance
(I) The gaseous and particulate matter emissions from various units shall conform to the standards prescribed by the Andhra Pradesh Pollution Control Board. At no time, particulate emissions from the cement plant including kiln, coal mill, cement mill, cooler and captive power plant (CPP) shall not exceed 50 mg/Nm ³ . Continuous on-line monitors for particulate emissions shall be installed. Interlocking facility shall be provided in the pollution control equipment so that in the event of the pollution control equipment not working, the respective unit (s) is shut down automatically.	It will be complied as and when cement plant established & in operation
(II) Secondary fugitive emissions shall be controlled within the prescribed limits and regularly monitored. Guidelines / Code of Practice issued by the CPCB in this regard should be followed. The company shall install adequate dust collection and extraction system to control fugitive dust emissions at material transfer points. Atomized water spray system with reclaimers shall be provided to the silo used for the storage of ash. Storage of other raw materials shall be in closed roof sheds. Covered conveyer belts shall be used to reduce fugitive emissions. Concreting of all the roads, water sprinkling system at limestone and coal handling area shall be ensured to reduce fugitive emissions.	It will be complied as and when cement plant established & in operation

Ambient Air quality and Noise monitoring are carried out in every season through M/s **KIWIS ECO LABORATORYIES Pvt. Ltd, Accredited by NABL** the results are “summarized in table” and reports are enclosed as **ANNEXURE – IA & 1B**. All the results are within permissible limits.

Summary of AAQ Monitoring stations test Reports:-

AAQ Monitoring test Reports for Pre-Monsoon 2019

Location	PM ₁₀	PM _{2.5}	SO ₂	NO _x	TSPM *
Mines Office	69.3	30.8	16.6	18.9	145.3
Kotapadu	64.9	29.6	17.3	19.2	140.2
Perusomala	71.6	31.8	17.7	21.2	150.6
Ramireddipalli	67.2	28.3	16.5	18.3	146.9
Nandipadu	65.8	26.2	17.1	19.6	145.2
Kalvatata	68.6	27.7	17.8	20.8	139.2
Kolimigundla	72.6	34.2	18.3	22.1	164.2
Mirjapuram	66.6	28.2	15.9	19.5	137.2

Standards (µg/m3)	100	60	80	80	200
Min	64.9	26.2	15.9	18.3	137
Max	72.6	34.2	18.3	22.1	164
Avarage	68.32	29.6	17.15	19.95	146

AAQ Monitoring test Reports for Summer 2019

Location	PM ₁₀	PM _{2.5}	SO ₂	NO _x	TSPM *
Mines Office	68.9	30.3	15.9	18.1	147.8
Kotapadu	64.8	29.6	16.8	18.7	139.7
Perusomala	71.3	28.7	17.2	20.3	143.8
Ramireddipalli	66.1	29.1	16.6	19.0	154.7
Nandipadu	65.1	26.6	16.3	19.1	147.1
Kalvatata	68.8	28.6	18.8	20.6	135.5
Kolimigundla	70.9	33	17.7	21.3	163.3
Mirjapuram	65.8	29.3	16.1	18.2	133.3

Standards (µg/m3)	100	60	80	80	200
Min	64.80	26.60	15.90	18.10	133.30
Max	71.30	33.00	18.80	21.30	163.30
Avarage	67.71	29.40	16.93	19.41	145.65

(III) Ambient air quality including ambient noise levels shall not exceed the standards stipulated under EPA or by the State authorities. Monitoring of ambient air quality and shall be carried out regularly in consultation with APPCB and data for air emissions shall be submitted to the CPCB and APPCB regularly. The instruments used for ambient air quality monitoring shall be calibrated time to time.

Summary of Noise level Monitoring stations test Reports:-

Ambient Noise levels for Pre-Monsoon 2019

Location	Time	Min	Max	Avg	Permissible Limit
Mines Office	Day	55.4	67.3	61.35	75 dB(A)
	Night	52.6	57.9	55.25	70 dB(A)
Kotapadu	Day	51.2	66.9	59.05	55 dB(A)
	Night	49.6	51.2	50.4	45 dB(A)
Perusomula	Day	56.3	70.9	63.6	55 dB(A)
	Night	52.1	53.9	53	45 dB(A)
Ramireddy Palli	Day	53.5	67.2	60.35	55 dB(A)
	Night	50.3	57.2	53.75	45 dB(A)
Nandipadu	Day	58.6	67.9	63.25	55 dB(A)
	Night	50.6	52.3	51.45	45 dB(A)
Kalvatala	Day	52.2	61.9	57.05	55 dB(A)
	Night	50.2	55.6	52.9	45 dB(A)
Kolimigundla	Day	58.3	70.3	64.3	55 dB(A)
	Night	54	62.1	58.05	45 dB(A)
Mirjapuram	Day	54.3	60.5	57.4	55 dB(A)
	Night	52.1	54.5	53.3	45 dB(A)

Ambient Noise levels for Summer 2019

Location	Time	Min	Max	Avg	Permissible Limit
Mines Office	Day	54.1	65.2	59.65	75 dB(A)
	Night	51.2	53	52.1	70 dB(A)
Kotapadu	Day	46.2	55.1	50.65	55 dB(A)
	Night	41.5	44.7	43.1	45 dB(A)
Perusomula	Day	45.5	56.9	51.2	55 dB(A)
	Night	41.2	45.2	43.2	45 dB(A)
Ramireddy Palli	Day	46	55.1	50.55	55 dB(A)
	Night	42.3	45.8	44.05	45 dB(A)
Nandipadu	Day	45.4	56.9	51.15	55 dB(A)
	Night	41.7	45.1	43.4	45 dB(A)
Kalvatala	Day	44.6	55.3	49.95	55 dB(A)
	Night	38.8	42.3	40.55	45 dB(A)
Kolimigundla	Day	45	55.3	50.15	55 dB(A)
	Night	41.3	45.2	43.25	45 dB(A)
Mirjapuram	Day	46.4	54.7	50.55	55 dB(A)

		Night	40.3	43.4	41.85	45 dB(A)
(IV) Efforts shall be made to reduce impact of the transport of the raw materials and end products on the surrounding environment including agricultural land.	Effective measures will be taken to minimize any impact as per the stipulated guide lines.					
(V) Fly ash shall be utilized as per the provisions of Fly Ash Notification, 1999, subsequently amended in	Fly ash shall be used as per the Notification as and when cement plant operation starts.					

<p>2003. Fly ash shall be stored in ash silo and 100% used in the cement manufacturing.</p>	
<p>(VI) The company shall make the efforts to utilize the high calorific hazardous waste in the cement kiln and necessary provisions shall be made accordingly. The company shall keep the record of the waste utilized and shall submit the details to Ministry's Regional Office at Chennai, CPCB and SPCB.</p>	<p>The company shall utilize the high value CV hazardous waste in the Kiln upon commencement of production. A record of the same shall be maintained and the same shall be submitted to the requisite agencies.</p>
<p>(VII) Total ground water requirement shall not exceed 2,600 m³ / day and prior permission from the concerned State Authority shall be obtained from Central Ground Water Authority/ State Ground Water Board. A copy of permission letter shall be submitted to Ministry's Regional Office at Bangalore. The treated wastewater from STP and utilities shall be reutilized for green belt development and other plant related activities i.e. cooling and dust suppression in raw material handling area etc. after necessary treatment. 'Zero' discharge shall be strictly adopted and no effluent from the process shall be discharged outside the premises.</p>	<p>Obtained Ground Water permission for use of 2600 m³ / day from Central Ground Water Authority and state authority. Already submitted Permission copies to Regional office, Chennai.</p> <p>Treated waste water from STP and any other utilities shall be used for Greenbelt development in the Mines and Plant after establishment of STP and Cement Plant.</p>
<p>(VIII) Rainwater harvesting measures shall be adopted for the augmentation of ground water at cement plant, colony and mine site. Besides, company must also harvest the rainwater from the rooftops and storm water drains to recharge the ground water. The company must also collect rain water in the mined out pits of captive lime stone mine and use the same water for the various activities of the project to conserve fresh water and reduce the water requirement from the river. The Company shall construct the rain water harvesting and groundwater recharge structures outside the plan premises also in consultation with local Gram Panchayat and Village Heads to augment the ground water level. An action plan shall be submitted to Ministry's Regional Office at Bangalore within 3 months from date of issue of this letter</p>	<p>Till date company has made 109 numbers harvesting pits for nearby borewells in and around the project area.</p> <p>Also company has initiated Rain water harvesting measures like De-silting of check dams and digging of Recharge pits.</p> <p>Report on Investigations for Artificial Recharge through rain water harvesting in the premises of the proposed Prism Cement Plant was already submitted along with the compliance dated 19.07.2012.</p>

<p>(IX) The project proponent shall modify the mine plan of the project at the time of seeking approval for the next mining scheme from the Indian Bureau of Mines so as to reduce the area for external over burden dump by suitably increasing the height of the dumps with proper terracing. It shall be ensured that the overall slope of the dump does not exceed 28°.</p>	<p>The Mine Plan shall be modified as and when required.</p>
<p>(X) Topsoil, if any, shall be stacked with proper slope at earmarked site(s) only with adequate measures and should be used for reclamation and rehabilitation of mined out areas.</p>	<p>Top-soil Shall be stacked with proper slope at earmarked sites in the Mining Lease as per the Approved Mining Plan/Mining Scheme</p>
<p>(XI) The project proponent shall ensure that no natural water course shall be obstructed due to any mining and plant operations.</p>	<p>No natural water course shall be obstructed due to any mining and plant operations in the Mining Lease and alienated land for plant.</p>
<p>(XII) The inter burden and other waste generated shall be stacked at earmarked dump site(s) only and should not be kept active for long period. The total height of the dumps shall not exceed 30 m in three terraces of 10 m each and the overall slope of the dump shall be maintained to 28°. The inter burden dumps should be scientifically vegetated with suitable native species to prevent erosion and surface run off. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional Office, Bangalore on six monthly bases.</p>	<p>The inter burden and other waste shall be stacked at earmarked dumpsite as per approved Mining Plan/Mining Scheme.</p> <p>Dump Shall be properly designed as per norms</p>
<p>(XIII) The void left unfilled shall be converted into water body. The higher benches of excavated void/mining pit shall be terraced and plantation to be done to stabilize the slopes. The slope of higher benches shall be made gentler for easy accessibility by local people to use the water body. Peripheral fencing shall be carried out along the excavated area.</p>	<p>The worked out pit will be converted into water reservoir at the end of mining. The water filled in the reservoir will recharge ground water table around the lease area. Peripheral fencing will be carried out all along the worked out pit</p>
<p>(XIV) Catch drains and siltation ponds of appropriate size shall be constructed for the working pit, inter burden and mineral dumps to arrest flow of silt and sediment. The water so collected shall be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly</p>	<p>Construction of the siltation ponds and catch drains as and when required during course of Mining activity.</p>

desilted, particularly after monsoon and maintained properly.																															
(XV) Dimension of the retaining wall at the toe of inter burden dumps and inter burden benches within the mine to check run-off and siltation should be based on the rain fall data.	Construction of the retaining wall at the toe of dumps will be taking place as and when required during formation of dumping site.																														
(XVI) Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers at suitable locations by the project proponent in and around project area in consultation with Regional Director, Central Ground Water Board. The frequency of monitoring should be four times a year- pre-monsoon (April/May), monsoon (August), post-monsoon (November), and winter (January). Data thus collected shall be sent at regular intervals to Ministry of Environment and Forests and its Regional Office at Bangalore, Central Ground Water Authority and Central Ground Water Board.	<p>Regularly carrying out the monitoring of Ground Water levels and Quality of water in and around Core and Buffer Zone of the Project through M/s KIWIS ECO LABORATORYIES Pvt. Ltd, Accredited by NABL. Average water levels are and reports are enclosed as ANNEXURE-1A& 1B.</p> <p style="text-align: center;"><u>Ground water Level for Pre-Monsoon - 2019</u></p> <table border="1"> <thead> <tr> <th>Sl.No</th> <th>Location</th> <th>GW Level in mtr</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Mines Office</td> <td>17.2</td> </tr> <tr> <td>2</td> <td>Kalvatala</td> <td>15.4</td> </tr> <tr> <td>3</td> <td>Mirjapuram</td> <td>13.6</td> </tr> <tr> <td>4</td> <td>Ramireddy Palli</td> <td>15.3</td> </tr> </tbody> </table> <p style="text-align: center;"><u>Ground Water Level for Summer 2019</u></p> <table border="1"> <thead> <tr> <th>Sl.No</th> <th>Location</th> <th>GW Level in mtr</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Mines Office</td> <td>12.8</td> </tr> <tr> <td>2</td> <td>Kalvatala</td> <td>12.9</td> </tr> <tr> <td>3</td> <td>Mirjapuram</td> <td>11.3</td> </tr> <tr> <td>4</td> <td>Ramireddy Palli</td> <td>11.9</td> </tr> </tbody> </table>	Sl.No	Location	GW Level in mtr	1	Mines Office	17.2	2	Kalvatala	15.4	3	Mirjapuram	13.6	4	Ramireddy Palli	15.3	Sl.No	Location	GW Level in mtr	1	Mines Office	12.8	2	Kalvatala	12.9	3	Mirjapuram	11.3	4	Ramireddy Palli	11.9
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(XVII) Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, Central Ground Water Board.	Repaired existing check dams and the artesian open wells are left open for Ground Water Recharging in the Mining Lease.																														
(XVIII) 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 shall be implemented.	Conduct the blasting in day time and use Controlled blasting technique to minimize the ground vibrations and fly rocks.																														
(XIX) The project proponent shall adopt wet drilling.	Practice the Wet drilling to avoid the air pollution																														

(XX) As proposed, green belt should be developed in 33 % in and around the plant as per the CPCB guidelines.	Green belt is development in the Mining Lease as per the Approved Mine Plan.
(XXI) All the recommendations of the Corporate Responsibility or Environmental Protection (CREP) shall be strictly followed.	Strictly following the CSR and Environmental Protection Measures. Report of CSR activities with expenditure are enclosed as Annexure-2.
(XXII) 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 vehicles should be covered with a tarpaulin and shall not be overloaded.	Shall be complied with as and when vehicles deployed in the mines
(XXIII) Digital processing of the entire lease area using remote sensing technique shall be done regularly once in three years for monitoring land use pattern and report submitted to Ministry of Environment and Forests and its Regional Office, Bangalore.	Only Developmental activities are under progress, after commencement of production, digital processing of the Mining lease is carried with help of remote sensing technique.
(XXIV) A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure, for approval.	Final closure Plan shall be submitted as per the condition
(XXV) The company shall comply with the commitments made during public hearing held on 3 rd December, 2008.	Shall be complied

(B) GENERAL CONDITIONS

i. The project authority shall adhere to the stipulations made by State Pollution Control Board (SPCB) and State Government.	Adhering the stipulations made by SPCB and state Government.
ii. No further expansion or modification of the plant shall be carried out without prior approval of this Ministry.	Will strictly adhere as per statute

Regular monitoring is being done with Established 4 AAQ monitoring stations in Core Zone and 4 in buffer zone through M/s KIWIS ECO LABORATORYIES Pvt. Ltd, Accredited by NABL, results are “summarized in the below table” and reports are enclosed as Anneure-1A & 1B.

**AAQ Monitoring test Reports for
Pre-Monsoon - 2019**

Location	PM ₁₀	PM _{2.5}	SO ₂	NO _x	TSPM *
Mines Office	69.3	30.8	16.6	18.9	145.3
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Ramireddipalli	67.2	28.3	16.5	18.3	146.9
Nandipadu	65.8	26.2	17.1	19.6	145.2
Kalvatata	68.6	27.7	17.8	20.8	139.2
Kolimigundla	72.6	34.2	18.3	22.1	164.2
Mirjapuram	66.6	28.2	15.9	19.5	137.2

Standards (µg/m ³)	100	60	80	80	200
Min	64.9	26.2	15.9	18.3	137
Max	72.6	34.2	18.3	22.1	164
Average	68.32	29.6	17.15	19.95	146

AAQ Monitoring test Reports for Summer 2019

Location	PM ₁₀	PM _{2.5}	SO ₂	NO _x	TSPM *
Mines Office	68.9	30.3	15.9	18.1	147.8
Kotapadu	64.8	29.6	16.8	18.7	139.7
Perusomala	71.3	28.7	17.2	20.3	143.8
Ramireddipalli	66.1	29.1	16.6	19.0	154.7
Nandipadu	65.1	26.6	16.3	19.1	147.1
Kalvatata	68.8	28.6	18.8	20.6	135.5
Kolimigundla	70.9	33	17.7	21.3	163.3
Mirjapuram	65.8	29.3	16.1	18.2	133.3

Standards (µg/m ³)	100	60	80	80	200
Min	64.80	26.60	15.90	18.10	133.30
Max	71.30	33.00	18.80	21.30	163.30
Average	67.71	29.40	16.93	19.41	145.65

iii. At least four ambient air quality monitoring stations shall be established in the down wind direction as well as where maximum ground level concentration of SPM, SO₂ and NO_x are anticipated in consultation with the SPCB. Data on ambient air quality and stack emissions shall be regularly submitted to this Ministry including its Regional Office and SPCB / CPCB once in six months.

iv. Industrial wastewater shall be properly collected and 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. The treated wastewater shall

Industrial waste water shall be properly collected and treated to use for plantation purpose

be utilized for plantation purpose.

Monitoring the noise levels in core and Buffer zone is being carried out through **M/s KIWIS ECO LABORATORYIES Pvt. Ltd., Accredited by NABL**, results are “summarized in the below table” and reports are enclosed as **Annexure-1A & 1B**

Ambient Noise levels for Pre-Monsoon - 2019

Location	Time	Min	Max	Avg	Permissible Limit
Mines Office	Day	55.4	67.3	61.35	75 dB(A)
	Night	52.6	57.9	55.25	70 dB(A)
Kotapadu	Day	51.2	66.9	59.05	55 dB(A)
	Night	49.6	51.2	50.4	45 dB(A)
Perusomula	Day	56.3	70.9	63.6	55 dB(A)
	Night	52.1	53.9	53	45 dB(A)
Ramireddy Palli	Day	53.5	67.2	60.35	55 dB(A)
	Night	50.3	57.2	53.75	45 dB(A)
Nandipadu	Day	58.6	67.9	63.25	55 dB(A)
	Night	50.6	52.3	51.45	45 dB(A)
Kalvatala	Day	52.2	61.9	57.05	55 dB(A)
	Night	50.2	55.6	52.9	45 dB(A)
Kolimigundla	Day	58.3	70.3	64.3	55 dB(A)
	Night	54	62.1	58.05	45 dB(A)
Mirjapuram	Day	54.3	60.5	57.4	55 dB(A)
	Night	52.1	54.5	53.3	45 dB(A)

Ambient Noise levels for Summer 2019

Location	Time	Min	Max	Avg	Permissible Limit
Mines Office	Day	54.1	65.2	59.65	75 dB(A)
	Night	51.2	53	52.1	70 dB(A)
Kotapadu	Day	46.2	55.1	50.65	55 dB(A)
	Night	41.5	44.7	43.1	45 dB(A)
Perusomula	Day	45.5	56.9	51.2	55 dB(A)
	Night	41.2	45.2	43.2	45 dB(A)
Ramireddy Palli	Day	46	55.1	50.55	55 dB(A)
	Night	42.3	45.8	44.05	45 dB(A)
Nandipadu	Day	45.4	56.9	51.15	55 dB(A)
	Night	41.7	45.1	43.4	45 dB(A)
Kalvatala	Day	44.6	55.3	49.95	55 dB(A)

v. The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environmental (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).

		Night	38.8	42.3	40.55	45 dB(A)
	Kolimigundla	Day	45	55.3	50.15	55 dB(A)
		Night	41.3	45.2	43.25	45 dB(A)
	Mirjapuram	Day	46.4	54.7	50.55	55 dB(A)
		Night	40.3	43.4	41.85	45 dB(A)
vi. Proper housekeeping and adequate occupational health programmes shall be taken up. Occupational Health Surveillance programme shall be done on a regular basis and records maintained properly for at least 30-40 years. The programme shall include lung function and sputum analysis tests once in six months. Sufficient preventive measures shall be adopted to avoid direct exposure to dust etc.	Housekeeping is maintained.OHS program shall be initiated upon commencement of production.					
vii. The company shall undertake eco-development measures including community welfare measures in the project area.	Under CSR program, welfare measures are implemented expenditure details are summarized in annexure-2					
viii. The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/ EMP.	The construction and operational phase of the project comprises of various activities each of which will have an impact on some or other environmental parameters. Based on the evaluation of impacts and baseline conditions, an Environmental Management Plan (EMP) has been delineated to mitigate the adverse impacts. The EMP includes formulation, implementation and monitoring of environmental protection measures					
ix. A separate environmental management cell with full fledged laboratory facilities to carry out various management and monitoring functions shall be set up under the control of Senior Executive.	Environment Management Cell has been set up and is as below: upkar gupta - Env Head Mahesh Lekshman- Agent of Mines Movva Prakash - Mine Manager Shashank Shrivastava- Mine Engineer					
x. Adequate fund shall be allocated to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. Time bound implementation schedule for implementing all the conditions stipulated herein shall be submitted. The funds so provided shall not be diverted for any other purpose.	Shall be Allotted the adequate fund for Implementation of EC conditions					
xi. The Regional Office of this Ministry / CPCB / SPCB shall monitor the stipulated conditions. The project authorities shall extend full cooperation to the	Agreed.					

<p>officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.</p>	<p>Submitting the compliance report to APPCB and MOEF once in six months.</p>
<p>xii. The Project Authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.</p>	<p>Shall be Informed the date of commencement of land development work.</p>
<p>xiii. No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment & Forests. No change in the calendar plan including excavation, quantum of limestone and waste shall be made.</p>	<p>Mining operations will be as per the approved Scheme of Mining only.</p>
<p>xiv. 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.</p>	<p>Adopt the suitable measures to control the noise below 85 dBA and provide the Personal Protective Equipment</p>
<p>xv. 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.</p>	<ul style="list-style-type: none"> ➤ No industrial waste water will be generated during plant operation and mining. ➤ Soak pit and septic tank will be constructed for mine office toilets etc. ➤ Rainwater falling inside mine workings would be collected through garland drains and stored in the mines pit for de-silting. ➤ Excavated Mine Pit will be used for storage RAIN WATER; it will charge ground water and full fill the industrial water requirement. ➤ During monsoon, rain water harvesting will be practiced at plant and colony area. ➤ In Cement Plant process, water will be absorbed in the process or will be subjected to evaporation, hence no wastewater generation. ➤ Domestic waste water generated from proposed colony (approx.200 KLD) will be treated in STP and used for green belt development / Horticulture. ➤ A well equipped workshop with stores

	<p>and dumper garage will be provided for maintenance of machineries. A mobile maintenance Van manned with skilled persons will be provided for maintenance of machineries in the field</p> <p>➤ Oil, Grease and water separators will be arranged at mine work shop to prevent pollution of surface and ground water.</p>
<p>xvi. 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.</p>	<p>Personal Protective Equipment will be provided and proper training will be given before deployment on job.</p>
<p>xvii. The project authorities shall inform to the Regional Office located regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.</p>	<p>The closure Plan will be prepared and intimated before the closure.</p>
<p>xviii. A copy of clearance letter will be marked to concerned Panchayat/ local NGO, if any, from whom suggestion / representation, if any, was received while processing the proposal.</p>	<p>A copy of Env Clearance has been marked to the concerned Panchayat.</p>
<p>xix. State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office/ Tehsildar's Office for 30 days.</p>	<p>---</p>
<p>xx. The project authorities shall advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at "http://envfor.nic.in" and a copy of the same shall be forwarded to the Regional Office of this Ministry.</p>	<p>Already advertised in two local largest published News Papers, one in Telugu Newspaper (Sakshi) and another one in English (Andhra Jyoti) on dated 04.04.2009.</p>

Prism Cement Limited, AP Project

Report on CSR program (April'2019 to September'2019)

Introduction:

AP Cement Project at Kotapadu, Kolimigundla Mandal of Kurnool District:

Prism Cement Limited has proposed to setup an integrated green field cement project with clinker production capacity of 3.0 MTPA and cement capacity 4.8 MTPA at Kotapadu & Kalvatala villages of Kolimigundla Mandal, District – Kurnool, Andhra Pradesh.

Since its inception Prism Cement Limited has been socially responsible and has been voluntarily undertaken various Corporate Social Responsibility (CSR) initiatives for the betterment of community.

Thrust Areas of CSR for AP Cement project location:

- ✓ Education Development (Supporting Education)
- ✓ Water Resource Development and Drinking Water projects
- ✓ Rural Infrastructure Development
- ✓ Health

Geographical outreach of CSR initiatives in proposed AP cement project, Kurnool district:

S. No.	Name of the village	Mandal	District	Nature of connection
1	Kotapadu	Kolimigundla	Kurnool	ML area & PL area
2	Kalvatala			
3	Nandipadu			
4	Perusomala	Sanjamala		PL area

Summary of CSR initiatives by Prism Cement Limited under various thrust areas during **Oct'2018** to **Mar'2019** are as follows:

1. EDUCATION DEVELOPMENT:

Location	Project/activity
MP Primary School, Kotapdu	Supporting for cleanly maintenance of school

2. WATER RESOURCE DEVELOPMENT AND DRINKING WATER PROJECTS:

Location	Project/activity
Kotapadu village	Replaced new equipment at R.O. plant at Kotapadu village as the existing equipment got repaired.

3. RURAL INFRASTRUCTURE DEVELOPMENT:

Location	Project/activity
Kotapadu & Kalvatala villages	Supporting for <i>regular maintenance</i> of village cultural centers/ <i>religious places</i> .
Kotapadu village	Contributed to celebrate 'Shri Chowdeshwari Jyothulu' a cultural celebration as a heritage of the village

Few snapshots of CSR activities during the period:

Budget expenditure for the year 2019-20 (April'2019 to September'2019) under CSR program

Sl. No.	Program/Project description	Amount spent (Rs. in Lakhs)
1	Education Development	0.14
2	Rural Infrastructure Development Program	-
3	Water Resource Development and Drinking Water Projects	3.76
4	Non-plan programs / Activities	1.75
	Total	5.65

Prism Cement Limited, AP Project

CSR budget expenditure from 2009-10 (since project inception) to Nov 2019

Sl No	Program / Project Description	Year Wise expenditure (Rs.in Lakhs)											Total
		2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 till Nov19	
1	Education Development	-	-	5.61	10.76	1.51	13.65	0.69	12.80	1.21	0.18	0.14	46.55
2	Health & Sanitation	0.44	-	0.06	4.93	0.27	-	0.09	0.01	-	-	-	5.80
3	Rural Infrastructure Development	-	5.95	2.30	0.98	10.43	3.38	2.62	6.77	2.36	2.10	-	36.89
4	Water Resource Dev & Drinking water projects	-	1.64	2.29	11.12	4.01	2.06	0.63	6.03	2.71	1.74	3.76	35.99
5	Non - Plan Programs/Activities	1.58	10.77	7.20	14.71	9.74	1.73	0.90	0.43	0.33	1.57	1.75	50.71
		2.02	18.36	17.46	42.50	25.96	20.82	4.93	26.04	6.61	5.59	5.65	175.94

ENVIRONMENTAL MONITORING REPORT

For the Season of Pre Monsoon

in

Kotapadu Limestone Mine, Kalvatala & Kotapadu Villages,

Kolimigundla Mandal, Kurnool Dist., Andhra Pradesh.

For

PRISM JOHNSON LIMITED
(FORMERLY PRISM CEMENT LIMITED)

Prepared by



M/s KIWIS ECO LABORATORIES PVT LTD.,

(Recognized by MoEF, GOI, New Delhi

Certified by ISO 9001:2015, ISO 14001:2015 & OHSAS 18001:2007)

Plot No. 19, ALEAP Industrial Estate, Sy.No.342

Near Pragathi Nagar, Quthbullapur Mandal

Rangareddy Dist, Hyderabad, Telangana - 500090

Tel: +91- 9010357357

DECLARATION

This report has been prepared by M/s Kiwis Eco Laboratory Pvt. Ltd., on behalf of and for the use of the Customer with due consideration and skill as per our general terms and conditions of business and the terms of agreement with the customer.

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1.0 INTRODUCTION

M/s. Prism Cement Kotapadu Limestone Mine a part of M/s Prism Johnson Limited (PJL), Kolimigundla Mandal Kurnool Dist, Andhra Pradesh State.

M/s Prism Johnson Limited (PJL), is one of the cement producing business housed having installed production capacity of about 6.7 MTPA with the unit located in Satna at Madhya Pradesh. PJL proposes to setup one more cement plant of 4.8 MTPA Capacity at kolimigundla Mandal, Kurnool District, Andhra Pradesh. Limestone requirement of Cement Plant will be met from Limestone Deposit at Kotapadu, Kalvatala Villages.

PJL holds mining lease over an area of 663.46 Ha in villages of Kotapadu and Kalvatala Villages, Kolimigundala Mandal, Kurnool Dist, Andhra Pradesh. The mine is named as "Prism Cement Kotapadu Limestone Mine".

This report highlights the monitoring carried for Prism Cement Kotapadu Limestone Mine of Prism Johnson Limited.

Location:

The mine site is located between 0.5 km from Kotapadu in western direction and 1km NE of Kalavatala Villages, Kolimigundla Mandal, Kurnool District of Andhra Pradesh. The mine site is covered under Survey of India Topo-sheet No. 57 ¼ (1:50000 scale) and falls between 78°09'00" and 78°11'48" E longitude and 15°03'17"-15°04'05" N latitude and is located at an average MSL of 250 m. Fig-1.1 shows the location Map of the Mine Site. The mine site is surrounded by the following Villages.

TABLE 1: Name of the Villages:

S.No	Name of the Village
1	Kolimigundla
2	Kotapadu
3	Ramireddy Palli
4	Kalvatala
5	Perusomula
6	Nandipadu
7	Mirjapuram

The location map of the Mine is shown in **Figure 1.1**

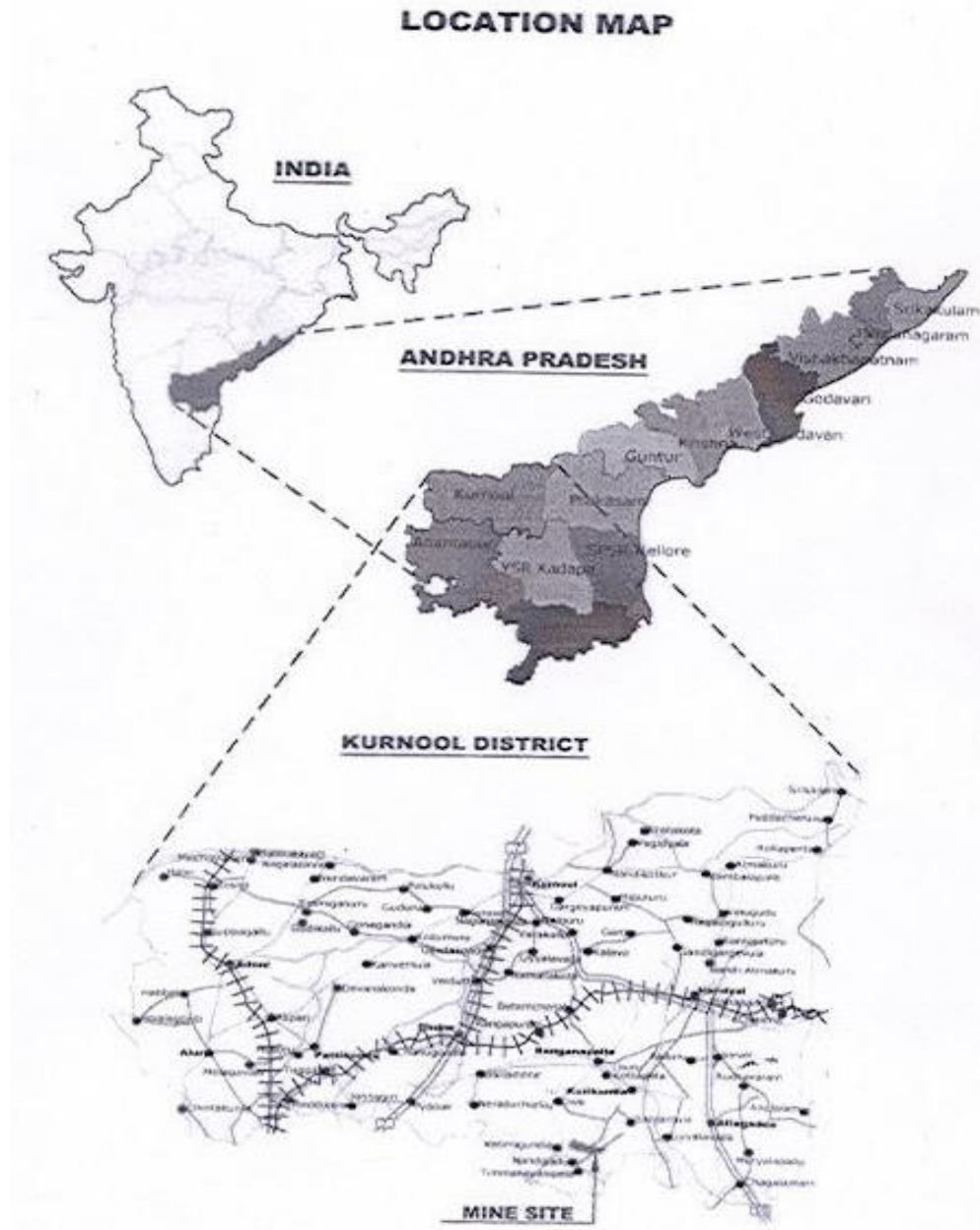


Fig: 1.1 PROJECT LOCATION MAP

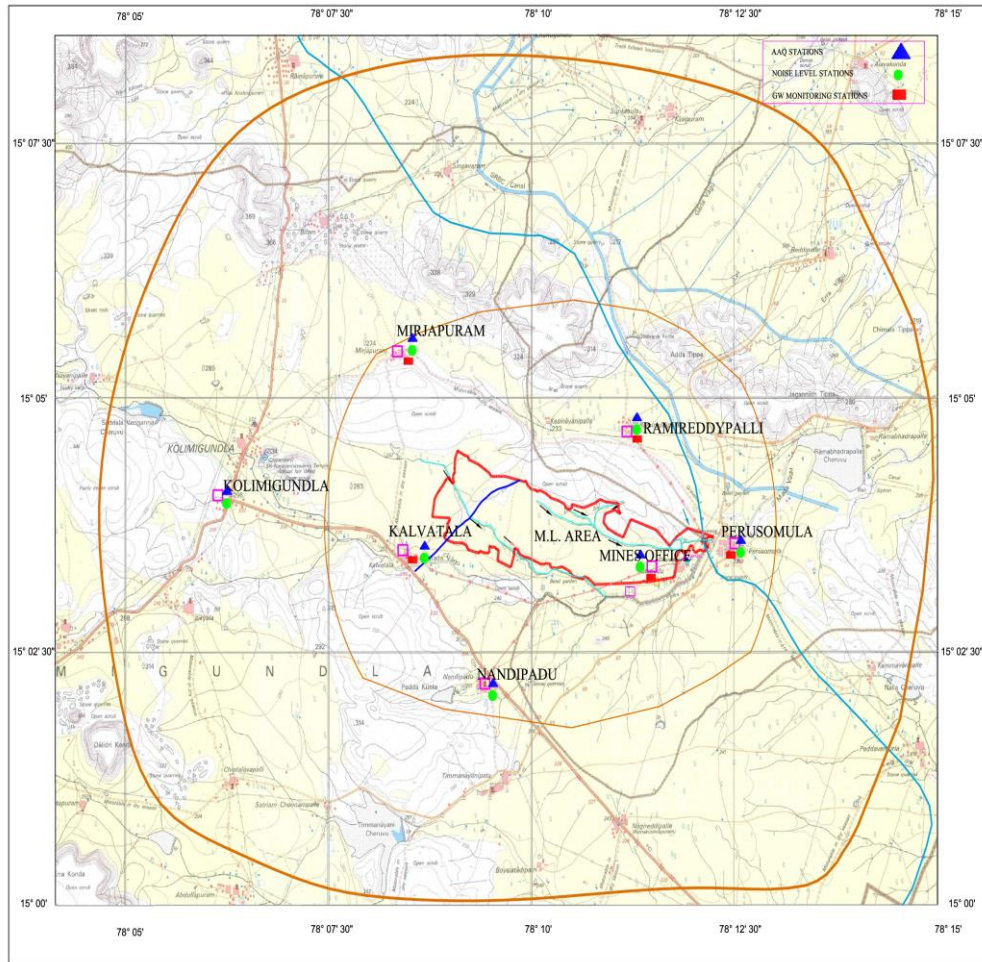


Fig: 1.2 Location Map of the Study Area at Prism Johnson Limited, Kurnool, A.P.

Legend:

- ▲ - AAQM LOCATIONS
- - NOISE LOCATIONS
- - GROUNDWATER LOCATIONS

Locations with Station Codes:

TABLE 2: DETAILS OF AMBIENT AIR QUALITY MONITORING STATIONS

Station Codes	Station Code	Location	Environmental Setting
1	AAQM-1	Mines Office	Industrial activities
2	AAQM-2	Kotapadu Village	Rural/Residential
3	AAQM-3	Perusomula Village	Rural/Residential
4	AAQM-4	Ramireddipalli Village	Rural/Residential
5	AAQM-5	Mirjapuram Village	Rural/Residential
6	AAQM-6	Kalvatala Village	Rural/Residential
7	AAQM-7	Kolimigundla Village	Rural/Residential
8	AAQM-8	Nandipadu Village	Rural/Residential

TABLE 2(a): DETAILS OF AMBIENT NOISE QUALITY MONITORING STATIONS:

S.No	Station Code	Location	Environmental Setting
1	NM-1	Mines Office	Industrial activities
2	NM-2	Kotapadu Village	Rural/Residential
3	NM-3	Perusomula Village	Rural/Residential
4	NM-4	Ramireddipalli Village	Rural/Residential
5	NM-5	Mirjapuram Village	Rural/Residential
6	NM-6	Kalvatala Village	Rural/Residential
7	NM-7	Kolimigundla Village	Rural/Residential
8	NM-8	Nandipadu Village	Rural/Residential

TABLE 2 (b): DETAILS OF GROUND WATER QUALITY MONITORING STATIONS:

S.No.	Station Code	Location	Source
1.	GW-1	Mines Office	Bore well
2.	GW-2	Ramireddipalli Village	Bore well
3.	GW-3	Mirjapuram Village	Bore well
4.	GW-4	Kalvatala Village	Bore well

2. STUDY AREA:

The present study of various environmental attributes is aimed of establishment project environmental status around the Mine Site.

The following environmental attributes were studies:

- Ambient Air Quality in surrounding villages.
- Ambient Noise Level survey in surrounding villages.
- Ground Water Quality

M/s Kiwis Eco Laboratories Pvt. Limited, Hyderabad carried out Monitoring studies on Pre Monsoon '2019 (i.e June'2019).

The survey results of Ambient Air Quality in and around, Ambient Noise Levels in and around the Mine site & water quality for the season of Pre Monsoon '2019 (i.e June'2019 is presented in this document.

3. AMBIENT AIR QUALITY

The Ambient Air Quality has been carried out in and around the Mine site of the Prism Johnson Limited Area. The various sources of air pollution in the study area, the prime objective of the Ambient Air Quality Monitoring is Air Quality of the study area.

3.1 METHODOLOGY ADOPTED FOR AIR QUALITY SURVEY

3.1.1 SELECTION OF SAMPLING LOCATIONS

The baseline status of the ambient air quality has been assessed through ambient air quality monitoring network. The design of monitoring network is based on the following considerations:

- ☞ Meteorological parameters
- ☞ Major human settlements
- ☞ Topography of the study area and
- ☞ Representatives of likely impact areas

Ambient Air Quality Monitoring (AAQM) stations were set up at Eight locations, One location is inside the Mine and seven locations outside the Mine Area with due considerations to the above mentioned points.

TABLE 3: DETAILS OF AMBIENT AIR QUALITY MONITORING STATIONS

Station Codes	Location	Date of Monitoring	Environmental Setting
AAQM-1	Mines Office	12.06.2019	Industrial activities
AAQM-2	Kotapadu Village	12.06.2019	Rural/Residential
AAQM-3	Perusomula Village	12.06.2019	Rural/Residential
AAQM-4	Ramireddipalli Village	12.06.2019	Rural/Residential
AAQM-5	Mirjapuram Village	13.06.2019	Rural/Residential
AAQM-6	Kalvatala Village	13.06.2019	Rural/Residential
AAQM-7	Kolimigundla Village	13.06.2019	Rural/Residential
AAQM-8	Nandipadu Village	13.06.2019	Rural/Residential

3.1.2 FREQUENCY AND PARAMETERS FOR SAMPLING

Ambient air quality monitoring has been carried out in Eight locations with a frequency of once in a week at each station in and around the Mine area.

The baseline data of air environment is generated for the following parameters:

- ☞ Total Suspended Particulate Matter (TSPM)
- ☞ Particulate Matter less than 10 microns (PM₁₀)
- ☞ Particulate Matter Less than 2.5 microns (PM_{2.5})
- ☞ Sulphur dioxide (SO₂)
- ☞ Oxides of Nitrogen (NO_x)

3.1.3 DURATION OF SAMPLING

The sampling duration for Total Suspended Particulate Matter (TSPM), Particulate Matter Less than 10 microns (PM₁₀), SO₂, NO_x, is 8hourly sampling for 24 hours, Particulate Matter Less than 2.5 microns (PM_{2.5}) is 24 hourly continuous samples per day.

3.2 METHOD OF MEASUREMENT AND ANALYSIS

The air samples are analyzed as per standard methods specified by Central Pollution Control Board (CPCB) & IS: 5182

TABLE 4: Techniques used for Ambient Air Quality Monitoring

S.No	Parameter	Technique	Test Method	Minimum Detectable Limit ($\mu\text{g}/\text{m}^3$)
1	Total Suspended Particulate Matter (TSPM)	Respirable Dust Sampler (Gravimetric Method)	IS 5182 (PART - IV), 1999	5.0
2	Particulate Matter less than 10 microns (PM_{10})	Respirable Dust Sampler (Gravimetric Method)	IS 5182 (PART - 23), 2006	5.0
3	Particulate Matter less than 2.5 microns ($\text{PM}_{2.5}$)	Fine Particulate Sampler (Gravimetric Method)	CPCB Guidelines for the measurement of Ambient Air Pollutants (Vol - 1)	5.0
4	Sulphur dioxide (SO_2)	Improved West and Geake Method	IS 5182 (PART - II), 2001	10.0
5	Oxides of Nitrogen (NO_x)	Sodium Arsenite Modified Jacob-Hochheiser Method	IS 5182 (PART - VI), 2006	6.0

3.2.1 SELECTION OF INSTRUMENTS FOR AIR QUALITY SAMPLING

Pre calibrated Respirable dust sampler's Model No. Lata Envirotech APM 860 instruments are used for monitoring Suspended Particulate Matter (SPM), Particulate Matter less than 10 microns (PM_{10}), and APM 154 instrument are used for Particulate Matter less than 2.5 microns ($\text{PM}_{2.5}$) and gaseous pollutants like SO_2 , NO_x

CALIBRATION: Calibration charts are prepared for all gaseous pollutants. The calibration is carried out whenever new absorbing solutions are prepared.

3.3 DETAILS OF SAMPLING LOCATIONS

AAQM-1: Mines Office

At this monitoring station the sampler was placed at a height of 1.5 m from the ground level. This station is selected to assess the air quality levels in the mine site Area.

AAQM-2: Kotapadu Village

At this monitoring station the sampler was placed at a height of 6.5 m from the ground level. This station is selected to assess the air quality levels in the Kotapadu Village.

AAQM-3: Perusomula Village

At this monitoring station the sampler was placed at a height of 3.5 m from the ground level. This station is selected to assess the air quality levels in the Perusomula Village.

AAQM-4: Ramireddipalli Village

At this monitoring station the sampler was placed on a bench at a height of 4.0 m from the ground level. The monitoring station was place in the Ramireddipalli village.

AAQM-5: Mirjapuram Village

The monitoring sampler was installed on top of residential building at a height of 2.0 m from the ground level. The monitoring station was place in the Mirjapuram Village.

AAQM-6: Kalavatala Village

The monitoring sampler was installed on top of residential building at a height of 3.0 m from the ground level. The monitoring station was place in the Kalvatalla Village.

AAQM-7: Kolimigundla Village

The monitoring sampler was installed on top of residential building at a height of 2.0 m from the ground level. The monitoring station was place in the Kolimigundla Village.

AAQM-8: Nandipadu Village

The monitoring sampler was installed on top of residential building at a height of 3.5 m from the ground level. The monitoring station was place in the Nandipadu Village.

3.3.1 PRESENTATION OF DATA

The summary of these results for each location for the month of June -2019 (Pre Monsoon) is presented in Tables.

These are compared with the standards prescribed by NAAQ standards, Central Pollution Control Board (CPCB).

TABLE: 5

AAQM-1: MINES OFFICE

S. No	Parameter	Method	Units	Result	Standards
1	PM ₁₀	IS 5182: Part 23 : 2006	µg/m ³	69.3	100
2	PM _{2.5}	CPCBs Guidelines Volume - 1 (2012-13)	µg/m ³	30.8	60
3	SO ₂	IS 5182: Part 2 : 2001	µg/m ³	16.6	80
4	NO _x	IS 5182:Part 6 :2006	µg/m ³	18.9	80
5	TSPM	IS 5182 (PART - IV), 1999	µg/m ³	145.3	200

TABLE: 6

AAQM-2: KOTAPADU VILLAGE

S. No	Parameter	Method	Units	Result	Standards
1	PM ₁₀	IS 5182: Part 23 : 2006	µg/m ³	64.9	100
2	PM _{2.5}	CPCBs Guidelines Volume - 1 (2012-13)	µg/m ³	29.6	60
3	SO ₂	IS 5182: Part 2 : 2001	µg/m ³	17.3	80
4	NO _x	IS 5182:Part 6 :2006	µg/m ³	19.2	80
5	TSPM	IS 5182 (PART - IV), 1999	µg/m ³	140.2	200

TABLE: 7
AAQM-3: PERUSOMULA VILLAGE

S. No	Parameter	Method	Units	Result	Standards
1	PM ₁₀	IS 5182: Part 23 : 2006	µg/m ³	71.6	100
2	PM _{2.5}	CPCBs Guidelines Volume - 1 (2012-13)	µg/m ³	31.8	60
3	SO ₂	IS 5182: Part 2 : 2001	µg/m ³	17.7	80
4	NO _x	IS 5182:Part 6 :2006	µg/m ³	21.2	80
5	TSPM	IS 5182 (PART - IV), 1999	µg/m ³	150.6	200

TABLE: 8
AAQM-4: RAMIREDDIPALLI VILLAGE

S. No	Parameter	Method	Units	Result	Standards
1	PM ₁₀	IS 5182: Part 23 : 2006	µg/m ³	67.2	100
2	PM _{2.5}	CPCBs Guidelines Volume - 1 (2012-13)	µg/m ³	28.3	60
3	SO ₂	IS 5182: Part 2 : 2001	µg/m ³	16.5	80
4	NO _x	IS 5182:Part 6 :2006	µg/m ³	18.3	80
5	TSPM	IS 5182 (PART - IV), 1999	µg/m ³	146.9	200

TABLE: 9
AAQM-5-MIRJAPURAM VILLAGE

S. No	Parameter	Method	Units	Result	Standards
1	PM ₁₀	IS 5182: Part 23 : 2006	µg/m ³	66.6	100
2	PM _{2.5}	CPCBs Guidelines Volume - 1 (2012-13)	µg/m ³	28.2	60
3	SO ₂	IS 5182: Part 2 : 2001	µg/m ³	15.9	80
4	NO _x	IS 5182:Part 6 :2006	µg/m ³	19.5	80
5	TSPM	IS 5182 (PART - IV), 1999	µg/m ³	137.2	200

TABLE: 10
AAQM-6: KALVATALA VILLAGE

S. No	Parameter	Method	Units	Result	Standards
1	PM ₁₀	IS 5182: Part 23 : 2006	µg/m ³	68.6	100
2	PM _{2.5}	CPCBs Guidelines Volume - 1 (2012-13)	µg/m ³	27.7	60
3	SO ₂	IS 5182: Part 2 : 2001	µg/m ³	17.8	80
4	NO _x	IS 5182:Part 6 :2006	µg/m ³	20.8	80
5	TSPM	IS 5182 (PART - IV), 1999	µg/m ³	139.2	200

TABLE: 11
AAQM-7: KOLIMIGUNDLA VILLAGE

S. No	Parameter	Method	Units	Result	Standards
1	PM ₁₀	IS 5182: Part 23 : 2006	µg/m ³	72.6	100
2	PM _{2.5}	CPCBs Guidelines Volume - 1 (2012-13)	µg/m ³	34.2	60
3	SO ₂	IS 5182: Part 2 : 2001	µg/m ³	18.3	80
4	NO _x	IS 5182:Part 6 :2006	µg/m ³	22.1	80
5	TSPM	IS 5182 (PART - IV), 1999	µg/m ³	164.2	200

TABLE: 12
AAQM-8: NANDIPADU VILLAGE

S. No	Parameter	Method	Units	Result	Standards
1	PM ₁₀	IS 5182: Part 23 : 2006	µg/m ³	65.8	100
2	PM _{2.5}	CPCBs Guidelines Volume - 1 (2012-13)	µg/m ³	26.2	60
3	SO ₂	IS 5182: Part 2 : 2001	µg/m ³	17.1	80
4	NO _x	IS 5182:Part 6 :2006	µg/m ³	19.6	80
5	TSPM	IS 5182 (PART - IV), 1999	µg/m ³	145.2	200

Reports are attached as ANNEXURE - I

3.4 RESULTS AND DISCUSSIONS OF THE AMBIENT AIR QUALITY

Total Suspended Particulate Matter (TSPM):

The maximum 24hours average value of TSPM was observed to be 164.2 $\mu\text{g}/\text{m}^3$ at Kolimigundla Village (AAQM-7) and the minimum value was found 137.2 $\mu\text{g}/\text{m}^3$ at Mirjapuram Village (AAQM-5). All the readings were below permissible limit of 200 $\mu\text{g}/\text{m}^3$ for 24hr duration as specified for Residential, Rural and other areas.

Respirable Particulate Matter/PM₁₀ (Size less than or equal to 10 μm):

The maximum 24hours average value of PM₁₀ was observed to be 72.6 $\mu\text{g}/\text{m}^3$ at Kolimigundla Village (AAQM-7) and the minimum value was found 72.2 $\mu\text{g}/\text{m}^3$ at Ramireddypalli Village (AAQM-3). All the readings were below permissible limit of 100 $\mu\text{g}/\text{m}^3$ for 24hr duration as specified for Residential, Rural and other areas.

Fine Particulate Matter/PM_{2.5} (Size less than or equal to 2.5 μm):

The maximum value of 34.2 $\mu\text{g}/\text{m}^3$ was found at Kolimigundla Village (AAQM-7), and minimum value was found 26.2 $\mu\text{g}/\text{m}^3$ at two locations Nandipadu Village (AAQM-8) & Nandipadu Village (AAQM-8). All the readings were below the permissible limit of 60 $\mu\text{g}/\text{m}^3$ for 24hr duration as specified for Residential, Rural and other areas.

Sulphur dioxide (SO₂):

The maximum 24hours average value of SO₂ Maximum value was found 18.3 $\mu\text{g}/\text{m}^3$ at Kolimigundla Village (AAQM-7), and minimum was 15.9 $\mu\text{g}/\text{m}^3$ at Mirjapuram Village (AAQM-5). All the readings were below the permissible limit of 80 $\mu\text{g}/\text{m}^3$ for 24hr duration as specified for Industrials, Residential, Rural and other areas.

Oxides of Nitrogen as NO₂ (NO_x):

The maximum 24hours average value of NO_x maximum value was found 22.1 $\mu\text{g}/\text{m}^3$ at Kolimigundla Village (AAQM-7), and minimum value of 18.3 $\mu\text{g}/\text{m}^3$ were found at Ramireddipalli Village (AAQM-4). All the readings were below the permissible limit of 80 $\mu\text{g}/\text{m}^3$ for 24hr duration as specified for Residential, Rural and other areas.

4.0 AMBIENT NOISE LEVEL SURVEY

Noise survey has been conducted in the study area while covering residential and industrial. Noise monitoring has been undertaken for 24 hr at each location.

4.1 IDENTIFICATION OF SAMPLING LOCATIONS

A preliminary reconnaissance survey has been undertaken to identify the major noise generating sources in the stud area. Noise at different noise generating sources has been identified based on the activities in and around the plant site. The noise monitoring has been conducted for determination of noise levels at 8 locations in the study area. The noise levels at each location were recorded for 24 hrs. The noise monitoring locations are given in Table 12

The day noise levels have been monitored during 6 am to 10 pm and night levels during 10 pm to 6 am at all locations covered in 10 Km radius of the study area.

TABLE 13: DETAILS OF NOISE LOCATIONS

Station Codes	Location	Date of Monitoring	Environmental Setting
NM-1	Mines Office	12.06.2019	Industrial activities
NM-2	Kotapadu Village	12.06.2019	Rural/Residential
NM-3	Perusomula Village	12.06.2019	Rural/Residential
NM-4	Ramireddipalli Village	12.06.2019	Rural/Residential
NM-5	Mirjapuram Village	13.06.2019	Rural/Residential
NM-6	Kalvatala Village	13.06.2019	Rural/Residential
NM-7	Kolimigundla Village	13.06.2019	Rural/Residential
NM-8	Nandipadu Village	13.06.2019	Rural/Residential

4.2 PARAMETERS MEASURED DURING NOISE SURVEY

4.2.1 EQUIVALENT SOUND PRESSURE LEVEL (Leq)

The Leq is the equivalent continuous sound level, which is equivalent to the same sound energy as the actual fluctuating sound measured in the same period. This is necessary because sound from noise source fluctuates widely during a given period of time.

L_{day} defined as the equivalent noise level measured over a period of time during day (6 am to 10 pm).

L_{Night} defined as the equivalent noise level measured over a period of time during night (10 pm to 6 am).

TABLE 14: RESULTS OF AMBIENT NOISE LEVELS IN THE STUDY AREA

Units: dB (A)

S.No	Location	Zone	Leq day Max	Leq day Min	Leq night Max	Leq night Min
1	Mines Office	Industrial activities	67.3	55.4	57.9	52.6
2	Kotapadu Village	Rural/Residential activities	66.9	51.2	51.2	49.6
3	Perusomula Village	Rural/Residential activities	70.9	56.3	53.9	52.1
4	Ramireddipalli Village	Rural/Residential activities	67.2	53.5	57.2	50.3
5	Mirjapuram Village	Rural/Residential activities	60.5	54.3	54.5	52.1
6	Kalvatala Village	Rural/Residential activities	61.9	52.2	55.6	50.2
7	Kolimigundla Village	Rural/Residential activities	70.3	58.3	62.1	54.0
8	Nandipadu Village	Rural/Residential activities	67.9	58.6	52.3	50.6
AMBIENT NOISE QUALITY STANDARDS						
AREA CODE	CATEGORY OF AREA	LIMITS IN dB (A) Leq				
		Day time	Night Time			
A	Industrial Area	75	70			
B	Commercial Area	65	55			
C	Residential Area	55	45			
D	Silence Zone	50	40			

4.3 RESULTS AND DISCUSSIONS OF THE AMBIENT NOISE QUALITY

NM-1: Mines Office:

At Mine Office Maximum Leq Day, dB (A) was found 67.3 and Minimum Leq Day, dB (A) was found 55.4.

At Mine Office Maximum Leq Night, dB (A) was found 57.9 and Minimum Leq Night, dB (A) was found 52.6.

NM-2: Kotapadu Village:

At Kotapadu Village Maximum Leq Day, dB (A) was found 66.9 and Minimum Leq Day, dB (A) was found 51.2.

At Kotapadu Village Maximum Leq Night, dB (A) was found 51.2 and Minimum Leq Night, dB (A) was found 49.6.

NM-3: Perusomula Village:

At Perusomula Village Maximum Leq Day, dB (A) was found 70.9 and Minimum Leq Day, dB (A) was found 56.3.

At Perusomula Village Maximum Leq Night, dB (A) was found 53.9 and Minimum Leq Night, dB (A) was found 52.1.

NM-4: Ramireddipalli village:

At Ramireddipalli Village Maximum Leq Day, dB (A) was found 67.2 and Minimum Leq Day, dB (A) was found 53.5.

At Ramireddipalli Village Maximum Leq Night, dB (A) was found 57.2 and Minimum Leq Night, dB (A) was found 50.3.

NM-6: Mirjapuram village:

At Mirjapuram Village Maximum Leq Day, dB (A) was found 60.5 and Minimum Leq Day, dB (A) was found 54.3.

At Mirjapuram Village Maximum Leq Night, dB (A) was found 54.5 and Minimum Leq Night, dB (A) was found 52.1.

NM-6: Kalvatala village:

At Kalvatala Village Maximum Leq Day, dB (A) was found 61.9 and Minimum Leq Day, dB (A) was found 52.2.

At Kalvatala Village Maximum Leq Night, dB (A) was found 55.6 and Minimum Leq Night, dB (A) was found 50.2.

NM-7: Kolimigundla Village:

At Kolimigundla Village Maximum Leq Day, dB (A) was found 70.3 and Minimum Leq Day, dB (A) was found 58.3.

At Kolimigundla Village Maximum Leq Night, dB (A) was found 62.1 and Minimum Leq Night, dB (A) was found 54.0.

NM-8: Nandipadu village:

At Nandipadu Village Maximum Leq Day, dB (A) was found 67.9 and Minimum Leq Day, dB (A) was found 58.6.

At Nandipadu Village Maximum Leq Night, dB (A) was found 52.3 and Minimum Leq Night, dB (A) was found 50.6.

Reports are attached as ANNEXURE - II

TABLE 14(a): SUMMARY RESULTS OF AMBIENT NOISE LEVELS IN THE STUDY AREA
Units: dB (A)

S.No	Time	Result in dB(A)							
		Mines office	Kotapadu Village	Perusom - ulla Village	Ramired - dipalli Village	Mirjapuram Village	Kalvatala Village	Kolimigundla Village	Nandipadu Village
1	06:00 - 07:00	55.4	62.3	59.6	58.3	56.8	52.2	58.3	59.6
2	07:00 - 08:00	56.8	64.6	61.7	59.2	56.5	53.6	59.6	61.3
3	08:00 - 09:00	57.2	65.3	65.3	60.3	57.8	54.8	60.3	65.4
4	09:00 - 10:00	58.3	66.9	70.5	62.2	57.3	56.7	61.2	63.3
5	10:00 - 11:00	60.3	63.7	70.8	64.8	55.5	59.2	62.2	65.6
6	11:00 - 12:00	63.1	64.6	70.3	65.5	59.1	60.3	63.4	65.1
7	12:00 - 13:00	65.6	64.5	70.9	66.1	59.8	60.5	64.4	67.2
8	13:00 - 14:00	66.3	65.9	70.6	66.9	60.5	60.2	65.4	67.9
9	14:00 - 15:00	67.7	66.3	70.6	67.2	58.5	61.1	66.7	66.3
10	15:00 - 16:00	66.5	66.5	69.2	66.5	60.1	61.3	67.8	67.1
11	16:00 - 17:00	66.7	66.9	68.6	65.4	59.6	61.9	69.9	65.3
12	17:00 - 18:00	67.3	66.3	68.3	63.2	57.9	59.3	70.3	64.2
13	18:00 - 19:00	65.4	65.6	68.6	62.1	55.3	59.2	69.2	62.3
14	19:00 - 20:00	64.3	65.7	69.1	62.6	57.6	55.3	68.3	62.5
15	20:00 - 21:00	64.1	59.6	68.7	61.1	56.8	54.9	66.4	60.6
16	21:00 - 22:00	63.3	55.4	59.6	58.6	54.3	54.2	65.5	62.3
17	22:00 - 23:00	60.9	51.2	56.3	55.5	55.1	53.8	64.2	58.6
18	23:00 - 00:00	57.9	50.6	53.9	54.4	54.3	53.2	62.1	52.3
19	00:00 - 01:00	54.9	51.2	53.1	52.1	54.1	51.9	60.3	51.6
20	01:00 - 02:00	54.3	49.8	53.7	50.3	54.5	50.6	54.0	50.9
21	02:00 - 03:00	52.6	49.6	53.3	50.6	53.4	50.2	54.3	51.2
22	03:00 - 04:00	53.8	50.3	52.1	52.2	52.1	51.6	55.2	50.9
23	04:00 - 05:00	54.6	50.7	53.8	55.6	53.8	52.8	57.9	51.3
24	05:00 - 06:00	54.8	52.1	55.9	57.2	54.2	55.8	54.4	50.6
Leq Day		65.7	66.6	70.7	63.4	58.0	60.1	66.9	65.0
Leq Night		54.7	50.7	53.8	52.8	54.1	52.1	56.0	51.2
CPCB Norms (Day Time)		75 dB(A)	55 dB(A)	55 dB(A)	55 dB(A)	55 dB(A)	55 dB(A)	55 dB(A)	55 dB(A)
CPCB Norms (Night time)		70 dB(A)	45 dB(A)	45dB(A)	45 dB(A)	45 dB(A)	45 dB(A)	45 dB(A)	45dB(A)

5. WATER QUALITY

The water quality parameters as per IS: 10500 for water resource within study area have been used for describing the water environment and assessing the impacts on it.

Based on the water samples in the study area four ground water samples were collected from the study area during the study period. These samples were taken as grab samples and were analyzed for various parameters compared with the standards for drinking water as per IS: 10500.

Four bore well samples are collected during the period of Pre Monsoon' 2019 (i.e June'2019).

Samples were collected in polyethylene carboys for chemical analysis. Samples collected for metal content were acidified with HNO₃ to pH < 2.0. Selected physico-chemical characteristics have been analyzed for projecting the existing water quality status in the study area. Parameters like temperature, Dissolved Oxygen (DO), and pH were analyzed at the time of sample collection.

The samples were collected and analyzed as per the procedures specified in "**Standard Methods for the Examination of Water**" published by **American Public Health Association (APHA)**.

TABLE 15: WATER SAMPLING LOCATIONS

S.No.	Station Code	Location	Date of sample collection	Source
1.	GW-1	Mines Office	13.06.2019	Bore well
2.	GW-2	Ramireddipalli Village	13.06.2019	Bore well
3.	GW-3	Mirjapuram Village	13.06.2019	Bore well
4.	GW-4	Kalvatala Village	13.06.2019	Bore well

5.1 PRESENTATION OF RESULTS

The results for the parameters analyzed for Ground Water samples are presented in the **Table 15(a) and 15(b), 15(c) and 16(d)**. The obtained results are compared with the standards for drinking water as per IS: 10500 – 2012 “Specifications for Drinking Water”.

TABLE 15(a): GROUND WATER QUALITY RESULTS AT MINES OFFICE

S.No	Parameter	Unit	Method	Result	IS 10500 Acceptable Limits	IS 10500 Permissible Limits
1	Color	CU	APHA 2120 C	<5.0	5	15
2	pH @ 26.0oC	-	APHA 4500H+ B	7.42	6.5-8.5	No relaxation
3	Turbidity	NTU	APHA 2130 B	<1.0	1	5
4	Electrical Conductivity	µMho/cm	APHA 2510 - B	1020.0	Not Specified	Not Specified
5	Total Dissolved solids	mg/L	APHA 2540 C	650.0	500	2000
6	Total Suspended Solids	mg/L	APHA 2540 D	<10.0	Not Specified	Not Specified
7	Alkalinity as CaCO3	mg/L	APHA 2320 B	330.0	200	600
8	Hardness as CaCO3	mg/L	APHA 2340 C	300.0	200	600
9	Calcium as Ca	mg/L	APHA 3500 Ca B	106.83	75	200
10	Magnesium as Mg	mg/L	APHA 3500-Mg B	8.57	30	100
11	Chlorides as Cl-	mg/L	APHA 4500 Cl- C	76.87	250	1000
12	Sulphates as SO4	mg/L	APHA 4500 SO4 D	27.16	200	400
13	Nitrate as NO3	mg/L	APHA 4500 NO3 B	1.49	45	No relaxation
14	Sodium as Na	mg/L	APHA 3500 Na B	52.5	Not Specified	Not Specified
15	Potassium as K	mg/L	APHA 3500 K B	2.4	Not Specified	Not Specified
16	Fluoride as F	mg/L	APHA 4500F- D	0.21	1.0	1.5
17	Iron as Fe	mg/L	APHA 3500 Fe B	0.25	0.3	No relaxation
18	Zinc as Zn	mg/L	APHA 3111 B	<0.2	5	15
19	Chemical Oxygen Demand	mg/L	APHA 5220 B	4.0	Not Specified	Not Specified
20	Biochemical Oxygen Demand (3 Days at 27OC)	mg/L	IS : 3025 (P-44)	<4.0	Not Specified	Not Specified

21	Lead as Pb	mg/L	APHA 3111 B	<0.01	0.01	No relaxation
22	Manganese as Mn	mg/L	APHA 3111 B	<0.1	0.1	0.3
23	Cadmium as Cd	mg/L	APHA 3111 B	<0.003	0.003	No relaxation
24	Copper as Cu	mg/L	APHA 3111 B	<0.05	0.05	1.5
25	Cyanide as CN ⁻	mg/L	APHA 4500 CN ⁻ C, E	<0.05	0.05	No relaxation
26	E-Coli	MPN/100ml	APHA 9221 G	Absent	Shall not be detectable in any 100 ml sample	Shall not be detectable in any 100 ml sample
Water available depth from the Ground		Meters	17.2			

TABLE 15(b): GROUND WATER QUALITY RESULTS AT RAMIREDDIPALLI VILLAGE

S.No	Parameter	Unit	Method	Result	IS 10500 Acceptable Limits	IS 10500 Permissible Limits
1	Color	CU	APHA 2120 C	<5.0	5	15
2	pH @ 25.8oC	-	APHA 4500H+ B	7.28	6.5-8.5	No relaxation
3	Turbidity	NTU	APHA 2130 B	<1.0	1	5
4	Electrical Conductivity	µMho/cm	APHA 2510 - B	1095.0	Not Specified	Not Specified
5	Total Dissolved solids	mg/L	APHA 2540 C	695.0	500	2000
6	Total Suspended Solids	mg/L	APHA 2540 D	<10.0	Not Specified	Not Specified
7	Alkalinity as CaCO3	mg/L	APHA 2320 B	340.0	200	600
8	Hardness as CaCO3	mg/L	APHA 2340 C	450.0	200	600
9	Calcium as Ca	mg/L	APHA 3500 Ca B	131.97	75	200
10	Magnesium as Mg	mg/L	APHA 3500-Mg B	29.52	30	100
11	Chlorides as Cl-	mg/L	APHA 4500 Cl- C	78.84	250	1000
12	Sulphates as SO4	mg/L	APHA 4500 SO4 D	20.16	200	400
13	Nitrate as NO3	mg/L	APHA 4500 NO3 B	2.04	45	No relaxation
14	Sodium as Na	mg/L	APHA 3500 Na B	55.0	Not Specified	Not Specified
15	Potassium as K	mg/L	APHA 3500 K B	2.3	Not Specified	Not Specified
16	Fluoride as F	mg/L	APHA 4500F- D	0.75	1.0	1.5
17	Iron as Fe	mg/L	APHA 3500 Fe B	0.14	0.3	No relaxation
18	Zinc as Zn	mg/L	APHA 3111 B	<0.2	5	15
19	Chemical Oxygen Demand	mg/L	APHA 5220 B	4.0	Not Specified	Not Specified
20	Biochemical Oxygen Demand (3 Days at 27°C)	mg/L	IS : 3025 (P-44)	<4.0	Not Specified	Not Specified
21	Lead as Pb	mg/L	APHA 3111 B	<0.01	0.01	No relaxation
22	Manganese as Mn	mg/L	APHA 3111 B	<0.1	0.1	0.3
23	Cadmium as Cd	mg/L	APHA 3111 B	<0.003	0.003	No relaxation
24	Copper as Cu	mg/L	APHA 3111 B	<0.05	0.05	1.5
25	Cyanide as CN-	mg/L	APHA 4500 CN- C, E	<0.05	0.05	No relaxation
26	E-Coli	MPN/100ml	APHA 9221 G	Absent	Shall not be detectable in any 100 ml sample	Shall not be detectable in any 100 ml sample
Water available depth from the Ground		Meters	15.3			

TABLE 15(c): GROUND WATER QUALITY RESULTS AT MIRJAPURAM VILLAGE

S.No	Parameter	Unit	Method	Result	IS 10500 Acceptable Limits	IS 10500 Permissible Limits
1	Color	CU	APHA 2120 C	<5.0	5	15
2	pH @ 26.1oC	-	APHA 4500H+ B	7.23	6.5-8.5	No relaxation
3	Turbidity	NTU	APHA 2130 B	<1.0	1	5
4	Electrical Conductivity	µMho/cm	APHA 2510 - B	1160.0	Not Specified	Not Specified
5	Total Dissolved solids	mg/L	APHA 2540 C	740.0	500	2000
6	Total Suspended Solids	mg/L	APHA 2540 D	<10.0	Not Specified	Not Specified
7	Alkalinity as CaCO ₃	mg/L	APHA 2320 B	365.0	200	600
8	Hardness as CaCO ₃	mg/L	APHA 2340 C	390.0	200	600
9	Calcium as Ca	mg/L	APHA 3500 Ca B	136.68	75	200
10	Magnesium as Mg	mg/L	APHA 3500-Mg B	12.38	30	100
11	Chlorides as Cl ⁻	mg/L	APHA 4500 Cl ⁻ C	80.81	250	1000
12	Sulphates as SO ₄	mg/L	APHA 4500 SO ₄ D	25.93	200	400
13	Nitrate as NO ₃	mg/L	APHA 4500 NO ₃ B	2.28	45	No relaxation
14	Sodium as Na	mg/L	APHA 3500 Na B	60.3	Not Specified	Not Specified
15	Potassium as K	mg/L	APHA 3500 K B	1.3	Not Specified	Not Specified
16	Fluoride as F	mg/L	APHA 4500F- D	0.24	1.0	1.5
17	Iron as Fe	mg/L	APHA 3500 Fe B	0.14	0.3	No relaxation
18	Zinc as Zn	mg/L	APHA 3111 B	<0.2	5	15
19	Chemical Oxygen Demand	mg/L	APHA 5220 B	4.0	Not Specified	Not Specified
20	Biochemical Oxygen Demand (3 Days at 27°C)	mg/L	IS : 3025 (P-44)	<4.0	Not Specified	Not Specified
21	Lead as Pb	mg/L	APHA 3111 B	<0.01	0.01	No relaxation
22	Manganese as Mn	mg/L	APHA 3111 B	<0.1	0.1	0.3
23	Cadmium as Cd	mg/L	APHA 3111 B	<0.003	0.003	No relaxation
24	Copper as Cu	mg/L	APHA 3111 B	<0.05	0.05	1.5
25	Cyanide as CN ⁻	mg/L	APHA 4500 CN ⁻ C, E	<0.05	0.05	No relaxation
26	E-Coli	MPN/100ml	APHA 9221 G	Absent	Shall not be detectable in any 100 ml sample	Shall not be detectable in any 100 ml sample
Water available depth from the Ground		Meters	13.6			

TABLE 15(d): GROUND WATER QUALITY RESULTS AT KALVATALA VILLAGE

S.No	Parameter	Unit	Method	Result	IS 10500 Acceptable Limits	IS 10500 Permissible Limits
1	Color	CU	APHA 2120 C	<5.0	5	15
2	pH @ 26.2oC	-	APHA 4500H+ B	7.37	6.5-8.5	No relaxation
3	Turbidity	NTU	APHA 2130 B	<1.0	1	5
4	Electrical Conductivity	µMho/cm	APHA 2510 - B	1130.0	Not Specified	Not Specified
5	Total Dissolved Solids	mg/L	APHA 2540 C	725.0	500	2000
6	Total Suspended Solids	mg/L	APHA 2540 D	<10.0	Not Specified	Not Specified
7	Alkalinity as CaCO3	mg/L	APHA 2320 B	350.0	200	600
8	Hardness as CaCO3	mg/L	APHA 2340 C	360.0	200	600
9	Calcium as Ca	mg/L	APHA 3500 Ca B	122.54	75	200
10	Magnesium as Mg	mg/L	APHA 3500-Mg B	13.33	30	100
11	Chlorides as Cl-	mg/L	APHA 4500 Cl- C	108.41	250	1000
12	Sulphates as SO4	mg/L	APHA 4500 SO4 D	28.81	200	400
13	Nitrate as NO3	mg/L	APHA 4500 NO3 B	2.15	45	No relaxation
14	Sodium as Na	mg/L	APHA 3500 Na B	70.5	Not Specified	Not Specified
15	Potassium as K	mg/L	APHA 3500 K B	2.8	Not Specified	Not Specified
16	Fluoride as F	mg/L	APHA 4500F- D	0.73	1.0	1.5
17	Iron as Fe	mg/L	APHA 3500 Fe B	0.17	0.3	No relaxation
18	Zinc as Zn	mg/L	APHA 3111 B	<0.2	5	15
19	Chemical Oxygen Demand	mg/L	APHA 5220 B	4.0	Not Specified	Not Specified
20	Biochemical Oxygen Demand (3 Days at 27OC)	mg/L	IS : 3025 (P-44)	<4.0	Not Specified	Not Specified
21	Lead as Pb	mg/L	APHA 3111 B	<0.01	0.01	No relaxation
22	Manganese as Mn	mg/L	APHA 3111 B	<0.1	0.1	0.3
23	Cadmium as Cd	mg/L	APHA 3111 B	<0.003	0.003	No relaxation
24	Copper as Cu	mg/L	APHA 3111 B	<0.05	0.05	1.5
25	Cyanide as CN-	mg/L	APHA 4500 CN- C, E	<0.05	0.05	No relaxation
26	E-Coli	MPN/100 ml	APHA 9221 G	Absent	Shall not be detectable in any 100 ml sample	Shall not be detectable in any 100 ml sample
Water available depth from the Ground			Meters	15.4		

5.2 GROUND WATER QUALITY RESULTS AND DISCUSSION

GROUND WATER QUALITY RESULTS DURING THE STUDY PERIOD PRE MONSOON 2019

Four ground water samples were collected in the study area. The results are discussed below.

- ☞ **pH values** of the water samples were found in the range 7.23 to 7.42 (Acceptable Limit: 6.5 to 8.5 & Permissible Limit: No Relaxation). Found to be within the limit.
- ☞ **Total Alkalinity as CaCO₃**: Min: 330.0 mg/l to Max: 365.0 mg/l. (Acceptable Limit: 200 mg/l Max & Permissible Limit: 600 mg/l Max).
- ☞ **Total Hardness as CaCO₃**: Min: 300.0/l to Max: 450.0 mg/l. (Acceptable Limit: 200 mg/l Max & Permissible Limit: 600 mg/l Max).
- ☞ **Chlorides**: Min: 76.87 mg/l to Max: 108.41 mg/l. (Acceptable Limit: 250 mg/l Max & Permissible Limit: 1000 mg/l Max).
- ☞ **Total Dissolved Solids**: Min: 650.0 mg/l to Max: 740.0 mg/l. (Acceptable Limit: 500 mg/l Max & Permissible Limit: 2000 mg/l Max).
- ☞ **Calcium as Ca**: Min: 106.83 mg/l to Max: 136.68 mg/l. (Acceptable Limit: 75 mg/l Max & Permissible Limit: 200 mg/l Max).
- ☞ **Fluoride as F**: Min: 0.21 mg/l to Max: 0.75 mg/l. (Acceptable Limit: 1.0 mg/l Max & Permissible Limit: 1.5 mg/l Max).

Reports are attached as ANNEXURE - III

6.0 CONCLUSION

6.1 Air Environment

It is concluded that air quality data in and around the Project, is well within the permissible limit as specified by Central Pollution Control Board (CPCB) in study area.

6.2 Noise level (Ambient Noise Level)

Ambient Noise levels shown are well within the limits both in day & night at all the stations in study area.

6.3 Water Quality Status

Water quality results indicate parameters are within the permissible limit, prescribed by IS: 10500 respectively. The results revealed that all the samples have satisfactory Physico-chemical characteristics.

Authorized Signatory

(Nalini Vijayalaxmi)

Lab Manager

End of the Report

ENVIRONMENTAL MONITORING REPORT

For the Season of Monsoon (September-2019)

in

Kotapadu Limestone Mine, Kalvatala & Kotapadu Villages,

Kolimigundla Mandal, Kurnool Dist., Andhra Pradesh.

For

PRISM JOHNSON LIMITED
(FORMERLY PRISM CEMENT LIMITED)

Prepared by



M/s KIWIS ECO LABORATORIES PVT LTD.,

(Recognized by MoEF, GOI, New Delhi

Certified by ISO 9001:2015, ISO 14001:2015 & OHSAS 18001:2007)

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DECLARATION

This report has been prepared by M/s Kiwis Eco Laboratory Pvt. Ltd., on behalf of and for the use of the Customer with due consideration and skill as per our general terms and conditions of business and the terms of agreement with the customer.

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1.0 INTRODUCTION

M/s. Prism Cement Kotapadu Limestone Mine a part of M/s Prism Johnson Limited (PJL), Kolimigundla Mandal Kurnool Dist, Andhra Pradesh State.

M/s Prism Johnson Limited (PJL), is one of the cement producing business housed having installed production capacity of about 6.7 MTPA with the unit located in Satna at Madhya Pradesh. PJL proposes to setup one more cement plant of 4.8 MTPA Capacity at kolimigundla Mandal, Kurnool District, Andhra Pradesh. Limestone requirement of Cement Plant will be met from Limestone Deposit at Kotapadu, Kalvatala Villages.

PJL holds mining lease over an area of 663.46 Ha in villages of Kotapadu and Kalvatala Villages, Kolimigundala Mandal, Kurnool Dist, Andhra Pradesh. The mine is named as "Prism Cement Kotapadu Limestone Mine".

This report highlights the monitoring carried for Prism Cement Kotapadu Limestone Mine of Prism Johnson Limited.

Location:

The mine site is located between 0.5 km from Kotapadu in western direction and 1km NE of Kalavatala Villages, Kolimigundla Mandal, Kurnool District of Andhra Pradesh. The mine site is covered under Survey of India Topo-sheet No. 57 ¼ (1:50000 scale) and falls between 78°09'00" and 78°11'48" E longitude and 15°03'17"-15°04'05" N latitude and is located at an average MSL of 250 m. Fig-1.1 shows the location Map of the Mine Site. The mine site is surrounded by the following Villages.

TABLE 1: Name of the Villages:

S.No	Name of the Village
1	Kolimigundla
2	Kotapadu
3	Ramireddy Palli
4	Kalvatala
5	Perusomula
6	Nandipadu
7	Mirjapuram

The location map of the Mine is shown in **Figure 1.1**

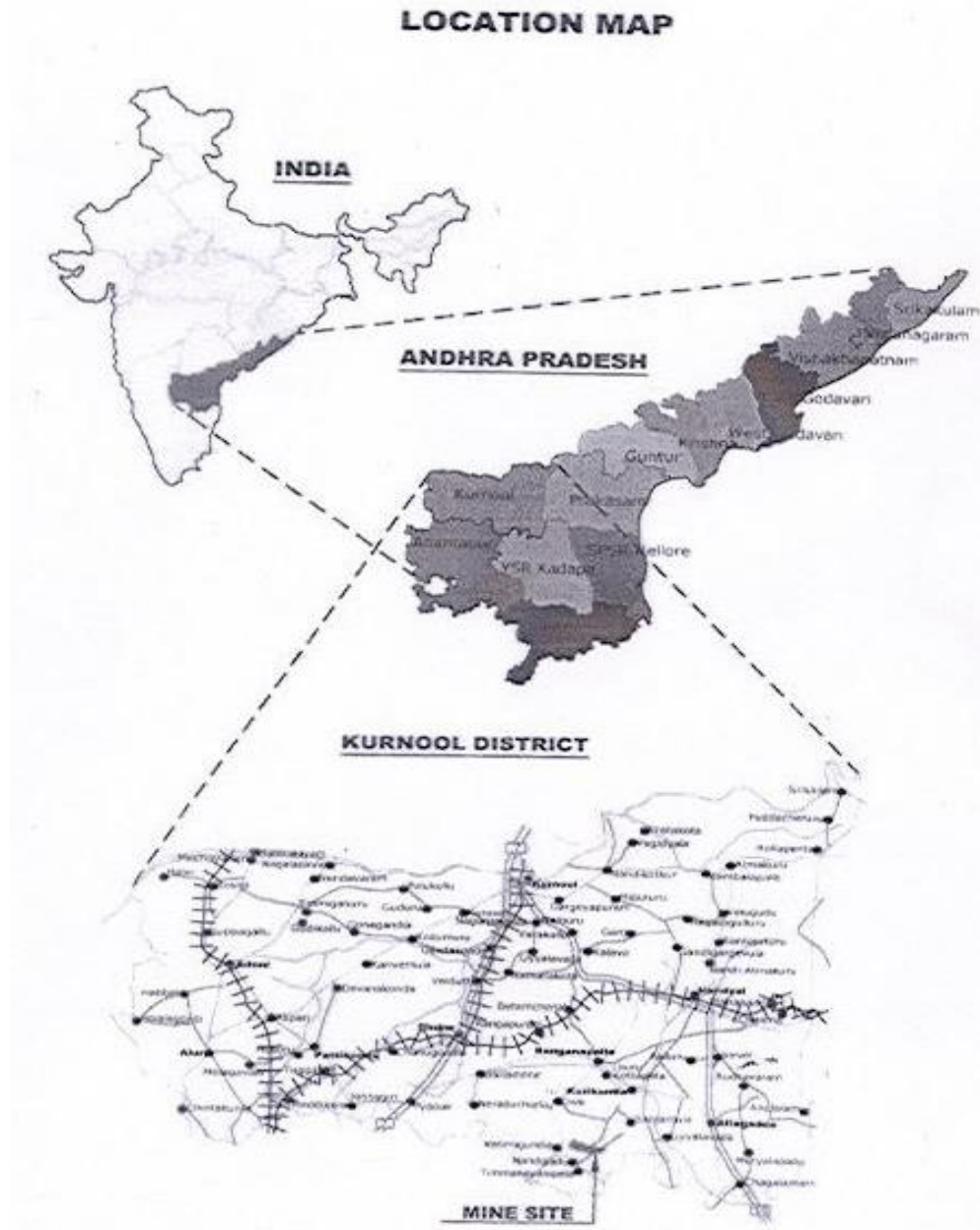


Fig: 1.1 PROJECT LOCATION MAP

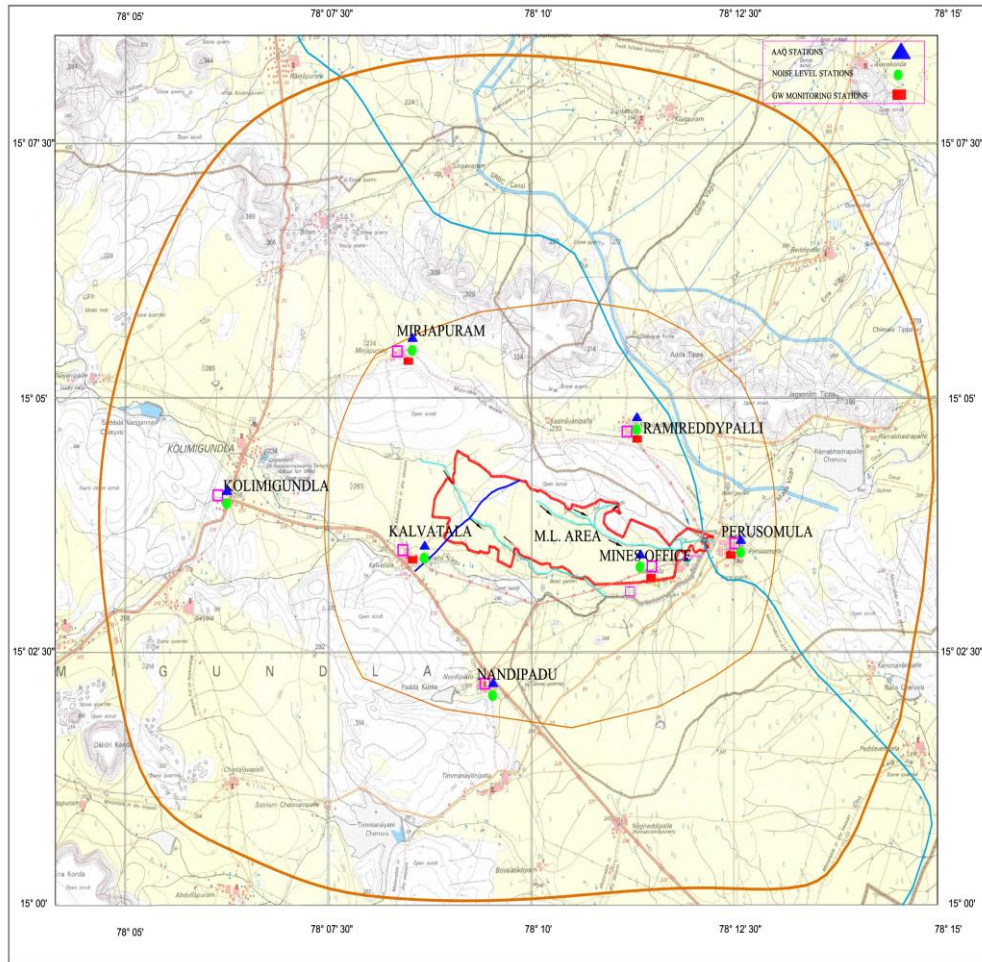


Fig: 1.2 Location Map of the Study Area at Prism Johnson Limited, Kurnool, A.P.

Legend:

- ▲ - AAQM LOCATIONS
- - NOISE LOCATIONS
- - GROUNDWATER LOCATIONS

Locations with Station Codes:

TABLE 2: DETAILS OF AMBIENT AIR QUALITY MONITORING STATIONS

Station Codes	Station Code	Location	Environmental Setting
1	AAQM-1	Mines Office	Industrial activities
2	AAQM-2	Kotapadu Village	Rural/Residential
3	AAQM-3	Perusomula Village	Rural/Residential
4	AAQM-4	Ramireddipalli Village	Rural/Residential
5	AAQM-5	Mirjapuram Village	Rural/Residential
6	AAQM-6	Kalvatala Village	Rural/Residential
7	AAQM-7	Kolimigundla Village	Rural/Residential
8	AAQM-8	Nandipadu Village	Rural/Residential

TABLE 2(a): DETAILS OF AMBIENT NOISE QUALITY MONITORING STATIONS:

S.No	Station Code	Location	Environmental Setting
1	NM-1	Mines Office	Industrial activities
2	NM-2	Kotapadu Village	Rural/Residential
3	NM-3	Perusomula Village	Rural/Residential
4	NM-4	Ramireddipalli Village	Rural/Residential
5	NM-5	Mirjapuram Village	Rural/Residential
6	NM-6	Kalvatala Village	Rural/Residential
7	NM-7	Kolimigundla Village	Rural/Residential
8	NM-8	Nandipadu Village	Rural/Residential

TABLE 2 (b): DETAILS OF GROUND WATER QUALITY MONITORING STATIONS:

S.No.	Station Code	Location	Source
1.	GW-1	Mines Office	Bore well
2.	GW-2	Ramireddipalli Village	Bore well
3.	GW-3	Mirjapuram Village	Bore well
4.	GW-4	Kalvatala Village	Bore well

2. STUDY AREA:

The present study of various environmental attributes is aimed of establishment project environmental status around the Mine Site.

The following environmental attributes were studies:

- Ambient Air Quality in surrounding villages.
- Ambient Noise Level survey in surrounding villages.
- Ground Water Quality

M/s Kiwis Eco Laboratories Pvt. Limited, Hyderabad carried out Monitoring studies on Mansoon '2019 (i.e September'2019).

The survey results of Ambient Air Quality in and around, Ambient Noise Levels in and around the Mine site & water quality for the season of Mansoon '2019 (i.e September'2019) is presented in this document.

3. AMBIENT AIR QUALITY

The Ambient Air Quality has been carried out in and around the Mine site of the Prism Johnson Limited Area. The various sources of air pollution in the study area, the prime objective of the Ambient Air Quality Monitoring is Air Quality of the study area.

3.1 METHODOLOGY ADOPTED FOR AIR QUALITY SURVEY

3.1.1 SELECTION OF SAMPLING LOCATIONS

The baseline status of the ambient air quality has been assessed through ambient air quality monitoring network. The design of monitoring network is based on the following considerations:

- ☞ Meteorological parameters
- ☞ Major human settlements
- ☞ Topography of the study area and
- ☞ Representatives of likely impact areas

Ambient Air Quality Monitoring (AAQM) stations were set up at Eight locations, One location is inside the Mine and seven locations outside the Mine Area with due considerations to the above mentioned points.

TABLE 3: DETAILS OF AMBIENT AIR QUALITY MONITORING STATIONS

Station Codes	Location	Date of Monitoring	Environmental Setting
AAQM-1	Mines Office	27.09.2019	Industrial activities
AAQM-2	Kotapadu Village	27.09.2019	Rural/Residential
AAQM-3	Perusomula Village	27.09.2019	Rural/Residential
AAQM-4	Ramireddipalli Village	27.09.2019	Rural/Residential
AAQM-5	Mirjapuram Village	28.09.2019	Rural/Residential
AAQM-6	Kalvatala Village	28.09.2019	Rural/Residential
AAQM-7	Kolimigundla Village	28.09.2019	Rural/Residential
AAQM-8	Nandipadu Village	28.09.2019	Rural/Residential

3.1.2 FREQUENCY AND PARAMETERS FOR SAMPLING

Ambient air quality monitoring has been carried out in Eight locations with a frequency of once in a week at each station in and around the Mine area.

The baseline data of air environment is generated for the following parameters:

- ☞ Total Suspended Particulate Matter (TSPM)
- ☞ Particulate Matter less than 10 microns (PM₁₀)
- ☞ Particulate Matter Less than 2.5 microns (PM_{2.5})
- ☞ Sulphur dioxide (SO₂)
- ☞ Oxides of Nitrogen (NO_x)

3.1.3 DURATION OF SAMPLING

The sampling duration for Total Suspended Particulate Matter (TSPM), Particulate Matter Less than 10 microns (PM₁₀), SO₂, NO_x, is 8hourly sampling for 24 hours, Particulate Matter Less than 2.5 microns (PM_{2.5}) is 24 hourly continuous samples per day.

3.2 METHOD OF MEASUREMENT AND ANALYSIS

The air samples are analyzed as per standard methods specified by Central Pollution Control Board (CPCB) & IS: 5182

TABLE 4: Techniques used for Ambient Air Quality Monitoring

S.No	Parameter	Technique	Test Method	Minimum Detectable Limit ($\mu\text{g}/\text{m}^3$)
1	Total Suspended Particulate Matter (TSPM)	Respirable Dust Sampler (Gravimetric Method)	IS 5182 (PART - IV), 1999	5.0
2	Particulate Matter less than 10 microns (PM_{10})	Respirable Dust Sampler (Gravimetric Method)	IS 5182 (PART - 23), 2006	5.0
3	Particulate Matter less than 2.5 microns ($\text{PM}_{2.5}$)	Fine Particulate Sampler (Gravimetric Method)	CPCB Guidelines for the measurement of Ambient Air Pollutants (Vol - 1)	5.0
4	Sulphur dioxide (SO_2)	Improved West and Geake Method	IS 5182 (PART - II), 2001	10.0
5	Oxides of Nitrogen (NO_x)	Sodium Arsenite Modified Jacob-Hochheiser Method	IS 5182 (PART - VI), 2006	6.0

3.2.1 SELECTION OF INSTRUMENTS FOR AIR QUALITY SAMPLING

Pre calibrated Respirable dust sampler's Model No. Lata Envirotech APM 860 instruments are used for monitoring Suspended Particulate Matter (SPM), Particulate Matter less than 10 microns (PM_{10}), and APM 154 instrument are used for Particulate Matter less than 2.5 microns ($\text{PM}_{2.5}$) and gaseous pollutants like SO_2 , NO_x

CALIBRATION: Calibration charts are prepared for all gaseous pollutants. The calibration is carried out whenever new absorbing solutions are prepared.

3.3 DETAILS OF SAMPLING LOCATIONS

AAQM-1: Mines Office

At this monitoring station the sampler was placed at a height of 1.5 m from the ground level. This station is selected to assess the air quality levels in the mine site Area.

AAQM-2: Kotapadu Village

At this monitoring station the sampler was placed at a height of 6.5 m from the ground level. This station is selected to assess the air quality levels in the Kotapadu Village.

AAQM-3: Perusomula Village

At this monitoring station the sampler was placed at a height of 3.5 m from the ground level. This station is selected to assess the air quality levels in the Perusomula Village.

AAQM-4: Ramireddipalli Village

At this monitoring station the sampler was placed on a bench at a height of 4.0 m from the ground level. The monitoring station was place in the Ramireddipalli village.

AAQM-5: Mirjapuram Village

The monitoring sampler was installed on top of residential building at a height of 2.0 m from the ground level. The monitoring station was place in the Mirjapuram Village.

AAQM-6: Kalavatala Village

The monitoring sampler was installed on top of residential building at a height of 3.0 m from the ground level. The monitoring station was place in the Kalvatalla Village.

AAQM-7: Kolimigundla Village

The monitoring sampler was installed on top of residential building at a height of 2.0 m from the ground level. The monitoring station was place in the Kolimigundla Village.

AAQM-8: Nandipadu Village

The monitoring sampler was installed on top of residential building at a height of 3.5 m from the ground level. The monitoring station was place in the Nandipadu Village.

3.3.1 PRESENTATION OF DATA

The summary of these results for each location for the month of September-2019 (Mansoon) is presented in Tables.

These are compared with the standards prescribed by NAAQ standards, Central Pollution Control Board (CPCB).

TABLE: 5

AAQM-1: MINES OFFICE

S. No	Parameter	Method	Units	Result	Standards
1	PM ₁₀	IS 5182: Part 23 : 2006	µg/m ³	68.9	100
2	PM _{2.5}	CPCBs Guidelines Volume - 1 (2012-13)	µg/m ³	30.3	60
3	SO ₂	IS 5182: Part 2 : 2001	µg/m ³	15.9	80
4	NO _x	IS 5182:Part 6 :2006	µg/m ³	18.1	80
5	TSPM	IS 5182 (PART - IV), 1999	µg/m ³	147.8	200

TABLE: 6

AAQM-2: KOTAPADU VILLAGE

S. No	Parameter	Method	Units	Result	Standards
1	PM ₁₀	IS 5182: Part 23 : 2006	µg/m ³	64.8	100
2	PM _{2.5}	CPCBs Guidelines Volume - 1 (2012-13)	µg/m ³	29.6	60
3	SO ₂	IS 5182: Part 2 : 2001	µg/m ³	16.8	80
4	NO _x	IS 5182:Part 6 :2006	µg/m ³	18.7	80
5	TSPM	IS 5182 (PART - IV), 1999	µg/m ³	139.7	200

TABLE: 7
AAQM-3: PERUSOMULA VILLAGE

S. No	Parameter	Method	Units	Result	Standards
1	PM ₁₀	IS 5182: Part 23 : 2006	µg/m ³	71.3	100
2	PM _{2.5}	CPCBs Guidelines Volume - 1 (2012-13)	µg/m ³	28.7	60
3	SO ₂	IS 5182: Part 2 : 2001	µg/m ³	17.2	80
4	NO _x	IS 5182:Part 6 :2006	µg/m ³	20.3	80
5	TSPM	IS 5182 (PART - IV), 1999	µg/m ³	143.8	200

TABLE: 8
AAQM-4: RAMIREDDIPALLI VILLAGE

S. No	Parameter	Method	Units	Result	Standards
1	PM ₁₀	IS 5182: Part 23 : 2006	µg/m ³	66.1	100
2	PM _{2.5}	CPCBs Guidelines Volume - 1 (2012-13)	µg/m ³	29.1	60
3	SO ₂	IS 5182: Part 2 : 2001	µg/m ³	16.6	80
4	NO _x	IS 5182:Part 6 :2006	µg/m ³	19.0	80
5	TSPM	IS 5182 (PART - IV), 1999	µg/m ³	154.7	200

TABLE: 9
AAQM-5-MIRJAPURAM VILLAGE

S. No	Parameter	Method	Units	Result	Standards
1	PM ₁₀	IS 5182: Part 23 : 2006	µg/m ³	65.8	100
2	PM _{2.5}	CPCBs Guidelines Volume - 1 (2012-13)	µg/m ³	29.3	60
3	SO ₂	IS 5182: Part 2 : 2001	µg/m ³	16.1	80
4	NO _x	IS 5182:Part 6 :2006	µg/m ³	18.2	80
5	TSPM	IS 5182 (PART - IV), 1999	µg/m ³	133.3	200

TABLE: 10
AAQM-6: KALVATALA VILLAGE

S. No	Parameter	Method	Units	Result	Standards
1	PM ₁₀	IS 5182: Part 23 : 2006	µg/m ³	68.8	100
2	PM _{2.5}	CPCBs Guidelines Volume - 1 (2012-13)	µg/m ³	28.6	60
3	SO ₂	IS 5182: Part 2 : 2001	µg/m ³	18.8	80
4	NO _x	IS 5182:Part 6 :2006	µg/m ³	20.6	80
5	TSPM	IS 5182 (PART - IV), 1999	µg/m ³	135.5	200

TABLE: 11
AAQM-7: KOLIMIGUNDLA VILLAGE

S. No	Parameter	Method	Units	Result	Standards
1	PM ₁₀	IS 5182: Part 23 : 2006	µg/m ³	70.9	100
2	PM _{2.5}	CPCBs Guidelines Volume - 1 (2012-13)	µg/m ³	33.0	60
3	SO ₂	IS 5182: Part 2 : 2001	µg/m ³	17.7	80
4	NO _x	IS 5182:Part 6 :2006	µg/m ³	21.3	80
5	TSPM	IS 5182 (PART - IV), 1999	µg/m ³	163.3	200

TABLE: 12
AAQM-8: NANDIPADU VILLAGE

S. No	Parameter	Method	Units	Result	Standards
1	PM ₁₀	IS 5182: Part 23 : 2006	µg/m ³	65.1	100
2	PM _{2.5}	CPCBs Guidelines Volume - 1 (2012-13)	µg/m ³	26.6	60
3	SO ₂	IS 5182: Part 2 : 2001	µg/m ³	16.3	80
4	NO _x	IS 5182:Part 6 :2006	µg/m ³	19.1	80
5	TSPM	IS 5182 (PART - IV), 1999	µg/m ³	147.1	200

Reports are attached as ANNEXURE - I

3.4 RESULTS AND DISCUSSIONS OF THE AMBIENT AIR QUALITY

Total Suspended Particulate Matter (TSPM):

The maximum 24hours average value of TSPM was observed to be 163.3 $\mu\text{g}/\text{m}^3$ at Kolimigundla Village (AAQM-7) and the minimum value was found 133.3 $\mu\text{g}/\text{m}^3$ at Mirjapuram Village (AAQM-5). All the readings were below permissible limit of 200 $\mu\text{g}/\text{m}^3$ for 24hr duration as specified for Residential, Rural and other areas.

Respirable Particulate Matter/PM₁₀ (Size less than or equal to 10 μm):

The maximum 24hours average value of PM₁₀ was observed to be 71.3 $\mu\text{g}/\text{m}^3$ at Perusomula Village (AAQM-3) and the minimum value was found 64.8 $\mu\text{g}/\text{m}^3$ at Kotapadu Village (AAQM-2). All the readings were below permissible limit of 100 $\mu\text{g}/\text{m}^3$ for 24hr duration as specified for Residential, Rural and other areas.

Fine Particulate Matter/PM_{2.5} (Size less than or equal to 2.5 μm):

The maximum value of 33.0 $\mu\text{g}/\text{m}^3$ was found at Kolimigundla Village (AAQM-7), and minimum value was found 26.6 $\mu\text{g}/\text{m}^3$ at Nandipadu Village (AAQM-8). All the readings were below the permissible limit of 60 $\mu\text{g}/\text{m}^3$ for 24hr duration as specified for Residential, Rural and other areas.

Sulphur dioxide (SO₂):

The maximum 24hours average value of SO₂ Maximum value was found 18.8 $\mu\text{g}/\text{m}^3$ at Kalvatala Village (AAQM-6) and minimum was 15.9 $\mu\text{g}/\text{m}^3$ at Mines Office (AAQM-1). All the readings were below the permissible limit of 80 $\mu\text{g}/\text{m}^3$ for 24hr duration as specified for Industrials, Residential, Rural and other areas.

Oxides of Nitrogen as NO₂ (NO_x):

The maximum 24hours average value of NO_x maximum value was found 21.3 $\mu\text{g}/\text{m}^3$ at Kolimigundla Village (AAQM-7), and minimum value of 18.1 $\mu\text{g}/\text{m}^3$ were found at Mines Office (AAQM-1). All the readings were below the permissible limit of 80 $\mu\text{g}/\text{m}^3$ for 24hr duration as specified for Residential, Rural and other areas.

4.0 AMBIENT NOISE LEVEL SURVEY

Noise survey has been conducted in the study area while covering residential and industrial. Noise monitoring has been undertaken for 24 hr at each location.

4.1 IDENTIFICATION OF SAMPLING LOCATIONS

A preliminary reconnaissance survey has been undertaken to identify the major noise generating sources in the stud area. Noise at different noise generating sources has been identified based on the activities in and around the plant site. The noise monitoring has been conducted for determination of noise levels at 8 locations in the study area. The noise levels at each location were recorded for 24 hrs. The noise monitoring locations are given in Table 12

The day noise levels have been monitored during 6 am to 10 pm and night levels during 10 pm to 6 am at all locations covered in 10 Km radius of the study area.

TABLE 13: DETAILS OF NOISE LOCATIONS

Station Codes	Location	Date of Monitoring	Environmental Setting
NM-1	Mines Office	27.09.2019	Industrial activities
NM-2	Kotapadu Village	27.09.2019	Rural/Residential
NM-3	Perusomula Village	27.09.2019	Rural/Residential
NM-4	Ramireddipalli Village	27.09.2019	Rural/Residential
NM-5	Mirjapuram Village	28.09.2019	Rural/Residential
NM-6	Kalvatala Village	28.09.2019	Rural/Residential
NM-7	Kolimigundla Village	28.09.2019	Rural/Residential
NM-8	Nandipadu Village	28.09.2019	Rural/Residential

4.2 PARAMETERS MEASURED DURING NOISE SURVEY

4.2.1 EQUIVALENT SOUND PRESSURE LEVEL (Leq)

The Leq is the equivalent continuous sound level, which is equivalent to the same sound energy as the actual fluctuating sound measured in the same period. This is necessary because sound from noise source fluctuates widely during a given period of time.

L_{day} defined as the equivalent noise level measured over a period of time during day (6 am to 10 pm).

L_{Night} defined as the equivalent noise level measured over a period of time during night (10 pm to 6 am).

TABLE 14: RESULTS OF AMBIENT NOISE LEVELS IN THE STUDY AREA

Units: dB (A)

S.No	Location	Zone	Leq day Max	Leq day Min	Leq night Max	Leq night Min
1	Mines Office	Industrial activities	65.2	54.1	53.0	51.2
2	Kotapadu Village	Rural/Residential activities	55.1	46.2	44.7	41.5
3	Perusomula Village	Rural/Residential activities	56.9	45.5	45.2	41.2
4	Ramireddipalli Village	Rural/Residential activities	55.1	46.0	45.8	42.3
5	Mirjapuram Village	Rural/Residential activities	54.7	46.4	43.4	40.3
6	Kalvatala Village	Rural/Residential activities	55.3	44.6	42.3	38.8
7	Kolimigundla Village	Rural/Residential activities	55.3	45.0	45.2	41.3
8	Nandipadu Village	Rural/Residential activities	56.9	45.4	45.1	41.7
AMBIENT NOISE QUALITY STANDARDS						
AREA CODE	CATEGORY OF AREA	LIMITS IN dB (A) Leq				
		Day time	Night Time			
A	Industrial Area	75	70			
B	Commercial Area	65	55			
C	Residential Area	55	45			
D	Silence Zone	50	40			

4.3 RESULTS AND DISCUSSIONS OF THE AMBIENT NOISE QUALITY

NM-1: Mines Office:

At Mine Office Maximum Leq Day, dB (A) was found 65.2 and Minimum Leq Day, dB (A) was found 54.1.

At Mine Office Maximum Leq Night, dB (A) was found 53.0 and Minimum Leq Night, dB (A) was found 51.2.

NM-2: Kotapadu Village:

At Kotapadu Village Maximum Leq Day, dB (A) was found 55.1 and Minimum Leq Day, dB (A) was found 46.2.

At Kotapadu Village Maximum Leq Night, dB (A) was found 44.7 and Minimum Leq Night, dB (A) was found 41.5.

NM-3: Perusomula Village:

At Perusomula Village Maximum Leq Day, dB (A) was found 56.9 and Minimum Leq Day, dB (A) was found 45.5.

At Perusomula Village Maximum Leq Night, dB (A) was found 45.2 and Minimum Leq Night, dB (A) was found 41.2.

NM-4: Ramireddipalli village:

At Ramireddipalli Village Maximum Leq Day, dB (A) was found 55.1 and Minimum Leq Day, dB (A) was found 46.0.

At Ramireddipalli Village Maximum Leq Night, dB (A) was found 45.8 and Minimum Leq Night, dB (A) was found 42.3.

NM-5: Mirjapuram village:

At Mirjapuram Village Maximum Leq Day, dB (A) was found 54.7 and Minimum Leq Day, dB (A) was found 46.4.

At Mirjapuram Village Maximum Leq Night, dB (A) was found 43.4 and Minimum Leq Night, dB (A) was found 40.3.

NM-6: Kalvatala village:

At Kalvatala Village Maximum Leq Day, dB (A) was found 55.3 and Minimum Leq Day, dB (A) was found 44.6.

At Kalvatala Village Maximum Leq Night, dB (A) was found 42.3 and Minimum Leq Night, dB (A) was found 38.8.

NM-7: Kolimigundla Village:

At Kolimigundla Village Maximum Leq Day, dB (A) was found 55.3 and Minimum Leq Day, dB (A) was found 45.0.

At Kolimigundla Village Maximum Leq Night, dB (A) was found 45.2 and Minimum Leq Night, dB (A) was found 41.3.

NM-8: Nandipadu village:

At Nandipadu Village Maximum Leq Day, dB (A) was found 56.9 and Minimum Leq Day, dB (A) was found 45.4.

At Nandipadu Village Maximum Leq Night, dB (A) was found 45.1 and Minimum Leq Night, dB (A) was found 41.7.

Reports are attached as ANNEXURE - II

TABLE 14(a): SUMMARY RESULTS OF AMBIENT NOISE LEVELS IN THE STUDY AREA
Units: dB (A)

S.No	Time	Result in dB(A)							
		Mines office	Kotapadu Village	Perusom - ula Village	Ramired - dipalli Village	Mirjapuram Village	Kalvatala Village	Kolimigundla Village	Nandipadu Village
1	06:00 – 07:00	53.1	45.4	43.9	45.6	44.2	43.2	43.4	43.5
2	07:00 – 08:00	53.2	45.9	44.5	45.7	45.9	43.6	44.1	44.4
3	08:00 – 09:00	55.8	46.5	46.2	46.2	46.7	45.2	45.6	46.1
4	09:00 – 10:00	57.9	47.8	48.2	47.2	48.9	47.4	47.6	47.9
5	10:00 – 11:00	59.5	49.7	50.2	49.7	49.8	49.6	50.1	50.1
6	11:00 – 12:00	61.7	51.6	52.6	51.2	50.7	51.2	51.5	52.3
7	12:00 – 13:00	62.8	53.7	54.6	53.7	52.1	53.3	53.3	54.6
8	13:00 – 14:00	64.9	54.9	56.2	54.9	52.8	54.6	54.6	56.2
9	14:00 – 15:00	65.7	55.5	57.6	55.5	53.9	56.4	56.4	57.6
10	15:00 – 16:00	65.8	56.8	58.7	56.8	54.6	56.3	56.3	58.7
11	16:00 – 17:00	63.7	54.6	56.4	54.6	55.8	54.2	54.2	56.4
12	17:00 – 18:00	62.9	54.1	55.4	54.1	54.9	53.2	53.2	55.4
13	18:00 – 19:00	60.6	52.7	53.2	52.7	53.6	53.2	53.2	53.2
14	19:00 – 20:00	59.4	51.5	52.5	51.5	52.8	52.5	52.5	52.5
15	20:00 – 21:00	57.5	49.2	50.3	49.2	50.7	50.3	50.3	50.3
16	21:00 – 22:00	56.4	48.6	48.7	48.6	48.6	48.7	48.7	48.7
17	22:00 – 23:00	54.7	46.4	48.6	46.4	46.9	46.5	46.5	47.1
18	23:00 – 00:00	53.8	44.7	46.7	45.9	44.2	43.4	45.8	46.2
19	00:00 – 01:00	52.4	43.4	44.2	45.8	42.8	41.2	44.8	44.3
20	01:00 – 02:00	52.2	42.2	42.1	43.7	40.7	39.1	43.5	42.1
21	02:00 – 03:00	51.8	40.8	40.1	41.9	39.7	38.4	40.6	42.3
22	03:00 – 04:00	50.7	41.9	41.9	42.6	40.8	39.6	41.7	41.6
23	04:00 – 05:00	51.6	43.9	43.2	44.6	41.4	40.5	43.3	41.8
24	05:00 – 06:00	52.5	44.8	43.8	44.9	42.3	41.6	43.7	42.1
Leq Day		61.6	52.8	54.7	52.6	51.9	53.1	53.3	54.5
Leq Night		52.3	43.6	43.5	44.8	41.6	40.7	43.8	42.3
CPCB Norms (Day Time)		75 dB(A)	55 dB(A)	55 dB(A)	55 dB(A)	55 dB(A)	55 dB(A)	55 dB(A)	55 dB(A)
CPCB Norms (Night time)		70 dB(A)	45 dB(A)	45dB(A)	45 dB(A)	45 dB(A)	45 dB(A)	45 dB(A)	45dB(A)

5. WATER QUALITY

The water quality parameters as per IS: 10500 for water resource within study area have been used for describing the water environment and assessing the impacts on it.

Based on the water samples in the study area four ground water samples were collected from the study area during the study period. These samples were taken as grab samples and were analyzed for various parameters compared with the standards for drinking water as per IS: 10500.

Four bore well samples are collected during the period of Mansoon season' 2019 (i.e. September'19).

Samples were collected in polyethylene carboys for chemical analysis. Samples collected for metal content were acidified with HNO₃ to pH < 2.0. Selected physic-chemical characteristics have been analyzed for projecting the existing water quality status in the study area. Parameters like temperature, Dissolved Oxygen (DO), and pH were analyzed at the time of sample collection.

The samples were collected and analyzed as per the procedures specified in "Standard Methods for the Examination of Water" published by American Public Health Association (APHA).

TABLE 15: WATER SAMPLING LOCATIONS

S.No.	Station Code	Location	Date of sample collection	Source
1.	GW-1	Mines Office	28.09.2019	Bore well
2.	GW-2	Ramireddipalli Village	28.09.2019	Bore well
3.	GW-3	Mirjapuram Village	28.09.2019	Bore well
4.	GW-4	Kalvatala Village	28.09.2019	Bore well

5.1 PRESENTATION OF RESULTS

The results for the parameters analyzed for Ground Water samples are presented in the **Table 15(a) and 15(b), 15(c) and 16(d)**. The obtained results are compared with the standards for drinking water as per IS: 10500 - 2012 "Specifications for Drinking Water".

TABLE 15(a): GROUND WATER QUALITY RESULTS AT MINES OFFICE

S.No	Parameter	Unit	Method	Result	IS 10500 Acceptable Limits	IS 10500 Permissible Limits
1	Color	CU	APHA 2120 C	<5.0	5	15
2	pH @ 26.0°C	-	APHA 4500H+ B	7.47	6.5-8.5	No relaxation
3	Turbidity	NTU	APHA 2130 B	<1.0	1	5
4	Electrical Conductivity	µMho/cm	APHA 2510 - B	1065.0	Not Specified	Not Specified
5	Total Dissolved solids	mg/L	APHA 2540 C	690.0	500	2000
6	Total Suspended Solids	mg/L	APHA 2540 D	<10.0	Not Specified	Not Specified
7	Alkalinity as CaCO ₃	mg/L	APHA 2320 B	340.0	200	600
8	Hardness as CaCO ₃	mg/L	APHA 2340 C	315.0	200	600
9	Calcium as Ca	mg/L	APHA 3500 Ca B	107.27	75	200
10	Magnesium as Mg	mg/L	APHA 3500-Mg B	11.04	30	100
11	Chlorides as Cl ⁻	mg/L	APHA 4500 Cl ⁻ C	79.98	250	1000
12	Sulphates as SO ₄	mg/L	APHA 4500 SO ₄ D	27.98	200	400
13	Nitrate as NO ₃	mg/L	APHA 4500 NO ₃ B	1.66	45	No relaxation
14	Sodium as Na	mg/L	APHA 3500 Na B	56.2	Not Specified	Not Specified
15	Potassium as K	mg/L	APHA 3500 K B	2.5	Not Specified	Not Specified
16	Fluoride as F	mg/L	APHA 4500F- D	0.15	1.0	1.5
17	Iron as Fe	mg/L	APHA 3500 Fe B	0.13	0.3	No relaxation
18	Zinc as Zn	mg/L	APHA 3111 B	<0.2	5	15
19	Chemical Oxygen Demand	mg/L	APHA 5220 B	4.0	Not Specified	Not Specified
20	Biochemical Oxygen Demand (3 Days at 27°C)	mg/L	IS : 3025 (P-44)	<4.0	Not Specified	Not Specified
21	Lead as Pb	mg/L	APHA 3111 B	<0.01	0.01	No relaxation
22	Manganese as Mn	mg/L	APHA 3111 B	<0.1	0.1	0.3
23	Cadmium as Cd	mg/L	APHA 3111 B	<0.003	0.003	No relaxation
24	Copper as Cu	mg/L	APHA 3111 B	<0.05	0.05	1.5
25	Cyanide as CN ⁻	mg/L	APHA 4500 CN ⁻ C, E	<0.05	0.05	No relaxation
26	E-Coli	MPN/100ml	APHA 9221 G	Absent	Shall not be detectable in any 100 ml sample	Shall not be detectable in any 100 ml sample
Water available depth from the Ground		Meters	12.8			

TABLE 15(b): GROUND WATER QUALITY RESULTS AT RAMIREDDIPALLI VILLAGE

S.No	Parameter	Unit	Method	Result	IS 10500 Acceptable Limits	IS 10500 Permissible Limits
1	Color	CU	APHA 2120 C	<5.0	5	15
2	pH @ 25.8°C	-	APHA 4500H+ B	7.22	6.5-8.5	No relaxation
3	Turbidity	NTU	APHA 2130 B	<1.0	1	5
4	Electrical Conductivity	µMho/cm	APHA 2510 - B	1145.0	Not Specified	Not Specified
5	Total Dissolved solids	mg/L	APHA 2540 C	725.0	500	2000
6	Total Suspended Solids	mg/L	APHA 2540 D	<10.0	Not Specified	Not Specified
7	Alkalinity as CaCO ₃	mg/L	APHA 2320 B	350.0	200	600
8	Hardness as CaCO ₃	mg/L	APHA 2340 C	460.0	200	600
9	Calcium as Ca	mg/L	APHA 3500 Ca B	133.58	75	200
10	Magnesium as Mg	mg/L	APHA 3500-Mg B	30.67	30	100
11	Chlorides as Cl ⁻	mg/L	APHA 4500 Cl ⁻ C	82.47	250	1000
12	Sulphates as SO ₄	mg/L	APHA 4500 SO ₄ D	21.40	200	400
13	Nitrate as NO ₃	mg/L	APHA 4500 NO ₃ B	2.94	45	No relaxation
14	Sodium as Na	mg/L	APHA 3500 Na B	60.0	Not Specified	Not Specified
15	Potassium as K	mg/L	APHA 3500 K B	2.5	Not Specified	Not Specified
16	Fluoride as F	mg/L	APHA 4500F- D	0.54	1.0	1.5
17	Iron as Fe	mg/L	APHA 3500 Fe B	0.17	0.3	No relaxation
18	Zinc as Zn	mg/L	APHA 3111 B	<0.2	5	15
19	Chemical Oxygen Demand	mg/L	APHA 5220 B	4.0	Not Specified	Not Specified
20	Biochemical Oxygen Demand (3 Days at 27°C)	mg/L	IS : 3025 (P-44)	<4.0	Not Specified	Not Specified
21	Lead as Pb	mg/L	APHA 3111 B	<0.01	0.01	No relaxation
22	Manganese as Mn	mg/L	APHA 3111 B	<0.1	0.1	0.3
23	Cadmium as Cd	mg/L	APHA 3111 B	<0.003	0.003	No relaxation
24	Copper as Cu	mg/L	APHA 3111 B	<0.05	0.05	1.5
25	Cyanide as CN ⁻	mg/L	APHA 4500 CN ⁻ C, E	<0.05	0.05	No relaxation
26	E-Coli	MPN/100ml	APHA 9221 G	Absent	Shall not be detectable in any 100 ml sample	Shall not be detectable in any 100 ml sample
Water available depth from the Ground		Meters	11.9			

TABLE 15(c): GROUND WATER QUALITY RESULTS AT MIRJAPURAM VILLAGE

S.No	Parameter	Unit	Method	Result	IS 10500 Acceptable Limits	IS 10500 Permissible Limits
1	Color	CU	APHA 2120 C	<5.0	5	15
2	pH @ 26.1°C	-	APHA 4500H+ B	7.28	6.5-8.5	No relaxation
3	Turbidity	NTU	APHA 2130 B	<1.0	1	5
4	Electrical Conductivity	µMho/cm	APHA 2510 - B	1200.0	Not Specified	Not Specified
5	Total Dissolved solids	mg/L	APHA 2540 C	775.0	500	2000
6	Total Suspended Solids	mg/L	APHA 2540 D	<10.0	Not Specified	Not Specified
7	Alkalinity as CaCO ₃	mg/L	APHA 2320 B	375.0	200	600
8	Hardness as CaCO ₃	mg/L	APHA 2340 C	400.0	200	600
9	Calcium as Ca	mg/L	APHA 3500 Ca B	137.63	75	200
10	Magnesium as Mg	mg/L	APHA 3500-Mg B	13.49	30	100
11	Chlorides as Cl ⁻	mg/L	APHA 4500 Cl ⁻ C	84.97	250	1000
12	Sulphates as SO ₄	mg/L	APHA 4500 SO ₄ D	26.34	200	400
13	Nitrate as NO ₃	mg/L	APHA 4500 NO ₃ B	2.50	45	No relaxation
14	Sodium as Na	mg/L	APHA 3500 Na B	64.5	Not Specified	Not Specified
15	Potassium as K	mg/L	APHA 3500 K B	1.7	Not Specified	Not Specified
16	Fluoride as F	mg/L	APHA 4500F- D	0.18	1.0	1.5
17	Iron as Fe	mg/L	APHA 3500 Fe B	0.24	0.3	No relaxation
18	Zinc as Zn	mg/L	APHA 3111 B	<0.2	5	15
19	Chemical Oxygen Demand	mg/L	APHA 5220 B	4.0	Not Specified	Not Specified
20	Biochemical Oxygen Demand (3 Days at 27°C)	mg/L	IS : 3025 (P-44)	<4.0	Not Specified	Not Specified
21	Lead as Pb	mg/L	APHA 3111 B	<0.01	0.01	No relaxation
22	Manganese as Mn	mg/L	APHA 3111 B	<0.1	0.1	0.3
23	Cadmium as Cd	mg/L	APHA 3111 B	<0.003	0.003	No relaxation
24	Copper as Cu	mg/L	APHA 3111 B	<0.05	0.05	1.5
25	Cyanide as CN ⁻	mg/L	APHA 4500 CN ⁻ C, E	<0.05	0.05	No relaxation
26	E-Coli	MPN/100ml	APHA 9221 G	Absent	Shall not be detectable in any 100 ml sample	Shall not be detectable in any 100 ml sample
Water available depth from the Ground		Meters	11.3			

TABLE 15(d): GROUND WATER QUALITY RESULTS AT KALVATALA VILLAGE

S.No	Parameter	Unit	Method	Result	IS 10500 Acceptable Limits	IS 10500 Permissible Limits
1	Color	CU	APHA 2120 C	<5.0	5	15
2	pH @ 26.2°C	-	APHA 4500H+ B	7.34	6.5-8.5	No relaxation
3	Turbidity	NTU	APHA 2130 B	<1.0	1	5
4	Electrical Conductivity	µMho/cm	APHA 2510 - B	1090.0	Not Specified	Not Specified
5	Total Dissolved Solids	mg/L	APHA 2540 C	695.0	500	2000
6	Total Suspended Solids	mg/L	APHA 2540 D	<10.0	Not Specified	Not Specified
7	Alkalinity as CaCO ₃	mg/L	APHA 2320 B	335.0	200	600
8	Hardness as CaCO ₃	mg/L	APHA 2340 C	350.0	200	600
9	Calcium as Ca	mg/L	APHA 3500 Ca B	121.44	75	200
10	Magnesium as Mg	mg/L	APHA 3500-Mg B	11.04	30	100
11	Chlorides as Cl ⁻	mg/L	APHA 4500 Cl ⁻ C	104.97	250	1000
12	Sulphates as SO ₄	mg/L	APHA 4500 SO ₄ D	27.98	200	400
13	Nitrate as NO ₃	mg/L	APHA 4500 NO ₃ B	2.03	45	No relaxation
14	Sodium as Na	mg/L	APHA 3500 Na B	65.4	Not Specified	Not Specified
15	Potassium as K	mg/L	APHA 3500 K B	2.5	Not Specified	Not Specified
16	Fluoride as F	mg/L	APHA 4500F- D	0.42	1.0	1.5
17	Iron as Fe	mg/L	APHA 3500 Fe B	0.16	0.3	No relaxation
18	Zinc as Zn	mg/L	APHA 3111 B	<0.2	5	15
19	Chemical Oxygen Demand	mg/L	APHA 5220 B	4.0	Not Specified	Not Specified
20	Biochemical Oxygen Demand (3 Days at 27°C)	mg/L	IS : 3025 (P-44)	<4.0	Not Specified	Not Specified
21	Lead as Pb	mg/L	APHA 3111 B	<0.01	0.01	No relaxation
22	Manganese as Mn	mg/L	APHA 3111 B	<0.1	0.1	0.3
23	Cadmium as Cd	mg/L	APHA 3111 B	<0.003	0.003	No relaxation
24	Copper as Cu	mg/L	APHA 3111 B	<0.05	0.05	1.5
25	Cyanide as CN ⁻	mg/L	APHA 4500 CN ⁻ C, E	<0.05	0.05	No relaxation
26	E-Coli	MPN/100 ml	APHA 9221 G	Absent	Shall not be detectable in any 100 ml sample	Shall not be detectable in any 100 ml sample
Water available depth from the Ground			Meters	12.9		

5.2 GROUND WATER QUALITY RESULTS AND DISCUSSION

GROUND WATER QUALITY RESULTS DURING THE STUDY PERIOD MONSOON'2019

Four ground water samples were collected in the study area. The results are discussed below.

- ☞ **pH values** of the water samples were found in the range 7.22 to 7.47 (Acceptable Limit:6.5 to 8.5 & Permissible Limit: No Relaxation). Found to be within the limit.
- ☞ **Total Alkalinity as CaCO₃**: Min: 335.0mg/l to Max: 375.0 mg/l. (Acceptable Limit: 200 mg/l Max & Permissible Limit: 600 mg/l Max).
- ☞ **Total Hardness as CaCO₃**: Min:315.0/l to Max: 460.0mg/l. (Acceptable Limit: 200 mg/l Max & Permissible Limit: 600 mg/l Max).
- ☞ **Chlorides**: Min: 79.98 mg/l to Max: 104.97 mg/l. (Acceptable Limit: 250 mg/l Max & Permissible Limit: 1000 mg/l Max).
- ☞ **Total Dissolved Solids**: Min: 690.0 mg/l to Max: 775.0 mg/l. (Acceptable Limit: 500 mg/l Max & Permissible Limit: 2000 mg/l Max).
- ☞ **Calcium as Ca**: Min: 107.27 mg/l to Max: 137.63 mg/l. (Acceptable Limit: 75 mg/l Max & Permissible Limit: 200 mg/l Max).
- ☞ **Fluoride as F**: Min: 0.15 mg/l to Max: 0.54 mg/l. (Acceptable Limit: 1.0 mg/l Max & Permissible Limit: 1.5 mg/l Max).

Reports are attached as ANNEXURE - II

6.0 CONCLUSION

6.1 Air Environment

It is concluded that air quality data in and around the Project, is well within the permissible limit as specified by Central Pollution Control Board (CPCB) in study area.

6.2 Noise level (Ambient Noise Level)

Ambient Noise levels shown are well within the limits both in day & night at all the stations in study area.

6.3 Water Quality Status

Water quality results indicate parameters are within the permissible limit, prescribed by IS: 10500 respectively. The results revealed that all the samples have satisfactory Physico-chemical characteristics.

Checked By

(A.Neeraja)

Sr.Chemist

Authorized Signatory

(Ch.Rajani Kumari)

Managing Director

End of the Report