



AE/MOEF/06-11/23-24

To  
The Director  
Ministry of Environment, Forest and Climate Change  
Regional office (EZ),  
A/3, Chandrasekharapur,  
Bhubaneswar-751023

**Sub:** Requesting to issue a certified Compliance report of the status of compliance of the conditions stipulated in the environment clearance (Vide F. No. J-11015/225/2010-IA-II(M) dated 24/09/2012) for the proposed project (Expansion and modification of Ore Beneficiation (COB) Plant from Existing 1,000 TPA TO 1,20,000 TPA ) of M/s Anand Exports located at District Jajpur, Odisha.

**Ref:** EC Order No. F. No. J-11015/225/2010-IA-II(M) dated 24/09/2012

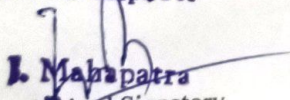
Respected Sir,

With reference to above subject, we are submitting herewith the half yearly compliance report (period of April -2023 to September-2023) in respect of stipulated prior Environmental Clearance terms and conditions in hard and soft copies in respect of our proposal "Expansion and modification of Ore Beneficiation (COB) Plant from Existing 1,000 TPA TO 1,20,000 TPA" of M/s Anand Exports located at District Jajpur, Odisha.

Now we need a copy of the Certified Compliance Report issued by your good office as per the requirement of MoEF &CC. Considering the same, we hereby request you to undertake a visit of our site & issue us a Certified Compliance Report based on your observations at your earliest convenience.

Thanking you,

Anand Exports

  
J. Mahapatra  
Authorized Signatory  
Anand Exports

Copy to:

1. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-office Complex, East Arjun Nagar, Delhi-110032.
2. The Chairman, Odisha State Pollution Control Board, Parivesh Bhawan, A/118, Nilakantha Nagar, Unit-VIII Bhubaneswar-751012.

**Compliance on condition for Environmental Clearance for the Ore Beneficiation (COB)  
Plant of M/s Anand Exports located at District Jajpur, Odisha  
(Ref: F.No.-J-11015/225/2010-IA.II (M), Government of India, MoEF & CC)**

**A. SPECIFIC CONDITION:**

Sr. No.	Conditions	Compliance
i.	The environment clearance is co-terminus with the mine lease.	Agreed
ii.	The project proponent shall obtain Consent to Establish and Consent to Operate from the State Pollution Control Board, Orissa and effectively implement all the conditions stipulated therein.	The Consent to Establish has been already obtained from Odisha State Pollution Control Board. Now, Consent to Operate obtained vide letter no. 573/KNG/IND/242 dtd. 30.03.2020. Attached as Annexure-I.
iii.	Environmental clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No. 460 of 2004, as may be applicable to this Project	Not Applicable
iv.	The drainage from the plant area should be contained within the plant. No surface run of should be allowed to go outside the plant premises.	Agreed  The surface runoff will be collected through this garland drain and will be collected in collection tank followed by ETP consists of flash mixer with chemical dosing (FeSO <sub>4</sub> & lime) followed by settling tank for conversion of Hexavalent chromium to trivalent chromium before discharge to outside.
v.	The company shall submit within 3months their policy towards Corporate Environment Responsibility which should inter-alia provide for (i) Standard operating process / process to bring into focus any fringement/deviation/violation of the environmental or forest norms/conditions, (ii) Hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the EC conditions and (iii) System of reporting of non- compliances/violations of environmental norms to the Board of Directors of the Company and / or Shareholders or stakeholders.	The Corporate Environmental Responsibility Policy specifically provides for the following: <ul style="list-style-type: none"> <li>• Standard operating process/procedures to bring into focus any fringement/deviation/violation of the environmental or forest norms/conditions,</li> <li>• Awareness of environmental and forest legislation throughout the company so that all regulatory requirements are met including conditions/stipulations/norms specified in environment and forest clearance.</li> <li>• Monitoring the implementation of the policy by carrying out periodic compliance audits which are reported to the Board of Directors and, when appropriate, adopting remedial measures.</li> <li>• Ensuring that during the course of their duties all employees act in accordance with the policy so as to appropriately deal with any environmental issues besides complying with all environment clearance conditions and also encouraging suppliers, contractors and</li> </ul>

		<p>vendors to do the same.</p> <ul style="list-style-type: none"> <li>• Giving preference to non-polluting technology, minimizing waste through re-use / recycling and reducing energy consumption</li> <li>• Maintaining transparency in all matters relating to compliance of environmental conditions/stipulations/norms.</li> <li>• Contributing towards awareness of the local community about the importance of the environment through open communication and appropriate CSR activities.</li> </ul>
<b>vi.</b>	Closed Crusher shall only be installed.	Agreed
<b>vii.</b>	The effluent treatment plant shall be provided for treatment of ore.	<ul style="list-style-type: none"> <li>• The effluents generated from beneficiation process were taken to settling tank.</li> <li>• Tailings were taken to slime pond from where the treated water is recycled and semidried/cake form tailings and taken to the proposed tailing pond in pay loader.</li> <li>• The adopted process involves only physical conversion such as grinding and separation under differentiation gravitational forces method. However, the runoff generated from tailing pond area is treated with Ferrous Sulphate and lime to convert Hexavalent chromium to trivalent chromium before discharge to outside.</li> </ul>
<b>viii.</b>	The particulate level shall be monitored for presence of Chromium, if any.	Half yearly compliance report on environmental monitoring will be submitted to MoEF &CC, New Delhi as per Schedule.
<b>ix.</b>	The storage area, both for raw material as also the tailings will be lined with HDPE lining.	Taken care & Implemented.
<b>x.</b>	Water quality both ground water and surface water shall be monitored for any possible leaching taking place. In case, any leaching of Chromium is observed, immediate necessary safeguard measures shall be implemented.	Ground Water Quality analysis Report attached as Annexure-II
<b>xi.</b>	Soil quality shall be monitored in and around the plant for chromium content.	Soil Quality Analysis Report attached as Annexure-III
<b>xii.</b>	Prior permission for drawl of requisite quantity of ground water for the project shall be obtained from the State Government Water Board/ Central Ground Water Authority.	NOC to be obtained from ground water Authority. Letter for CGWA Clearance vide letter no. 21-4 (365) /SER/CGWA/2011-1503 dated: 12.10.2011.
<b>xiii.</b>	The rainwater harvesting shall be adopted in consultation with the Regional Director, Central Ground Water Board.	Rain water harvesting proposal has already been submitted to the Regional Ground Water Board, Bhubaneswar vide letter no. 21-4 (365) /SER/CGWA/2011-1503dated:12.10.2011. Copy enclosed

		as Annexure-IV
<b>xiv.</b>	As part of ambient air quality monitoring during operational phase of the project, the air samples shall also be analyzed for their mineralogical composition and records maintained.	Agreed. AAQ analysis Report attached as Annexure-V
<b>xv.</b>	The water recovery and spill way system shall be so designed that the natural water resources are not affected and that no spill water from the plant goes into the Brahmani river or any other water body.	The water generated is treated for conversion of Cr+6 to Cr+3 before discharge to outside.
<b>xvi.</b>	The filter cake shall be disposed at the earmarked site only, which shall be above highest water table and shall be lined with HOPE lining to prevent any leaching from the filter cake disposal site into groundwater.	The tailings will be disposed in tailing pond in wet cake form after drying in slime pond.
<b>xvii.</b>	Effective safeguard measures such as conditioning of ore with water, regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and transfer points. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	Water sprinklers have been provided at all the potential dust generating source to control fugitive dust emission. AAQ qualities are within the standards.
<b>xviii.</b>	The project authority shall implement suitable water conservation measures to augment ground water resources In the area In consultation with the Regional Director, Central Ground Water Board.	Company has already obtained NOC from CGWA, Bhubaneswar vide letter No. 21-4 (365) /SER/CGWA/2011-1503 dated:12.10.2011.
<b>xix.</b>	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and installing new piezometers during the mining operation. The periodic monitoring [(at least four times in a year- pre-monsoon (April-May), monsoon (August). post- monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office Bhubaneswar, the Central Ground Water Authority and the Regional Director, Central Ground water Board. If at any stage, it Is observed that the groundwater table is getting depleted due to the mining activity. Necessary corrective measures shall be carried out.	Not Applicableas it is not a Mining Lease.
<b>xx.</b>	The water quality of Brahmani river. Upstream and downstream of the project shall be monitored regularly and records maintained. It shall be ensured that the quality or Water in the Brahmani river is not affected adversely due to this project.	Being followed. Surface Water Quality analysis report is attached as Annexure-VI.
<b>xxi.</b>	Greenbelt shall be raised in an area of	2000 plants were planted every year.

	1.73 ha in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 1500 - 2000 plants per ha. Greenbelt shall be developed all along the plant area in a phased manner and shall be completed within first five years.	This will also continue in the future expansion.
<b>xxii.</b>	Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the worker should be drawn and followed accordingly.	All the employees do undergo periodical medical examination (PME) in hospital every five years. However, as per the recent notification, PME of all the employees shall be carried out once in three years for those employees who have reached 45 years of age or more. As of now, no occupational diseases have been reported till date.
<b>xxiii.</b>	The proponent should evolve, if not already having a well laid down Environment Policy approved by its Board of Directors. It should inter-alia prescribe for standard operating process/ procedures to bring into focus any infringement/ deviation/violation of the environmental or forest norms/conditions. Hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the EC conditions should also be clearly spelt out. Details in this regard should be furnished.	It is being carried out.
<b>xxiv.</b>	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	It is being provided in the plant area with all amenities mentioned.

## B. General Conditions

<b>Sr. No.</b>	<b>Conditions</b>	<b>Compliance</b>
<b>i.</b>	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.	Agreed. If any further expansion or modifications in the plant to be carried out with Prior approval from Ministry of Environment and Forests.
<b>ii.</b>	At least four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10 micron i.e. PM10) and NOx monitoring. Location	Monitoring of the air quality was being conducted twice in a week as per CPCB guide lines. Likewise monitoring is done in buffer zone also. We have done ambient air quality monitoring as per recent Gazette Notification 826(E), dated 16.11.2009. The Ambient air Monitoring Report is attached in Annexure V.
<b>iii.</b>	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in high noise areas, etc. Should be provided with ear plugs/muffs.	To limit exposure of noise level of 85 dBA, due precautions at source and at the receiver end are being taken adequately. Rubber padding, acoustic hoods, silencers is being used to control noise within the plant. DG sets have

		also been provided with acoustic enclosures to prevent noise propagation.
<b>iv.</b>	Industrial waste water 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.	Effluent generated from the industry is being collected in a central sump & treated in the ETP for reuse in the plant. And the analysis report for ETP water enclosed as Annexure-VII
<b>v.</b>	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.	Adequate training & information is being given to personnel working in dusty areas. They are also provided with personal protective equipments (PPEs) such as dust mask.
<b>vi.</b>	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.	Health camp for health check-up of workers done in regular basis. Use of helmet and shoes is compulsory for both workers and visitors within plant premises.
<b>vii.</b>	A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to Head of the Organization.	General Manager of the company is in charged Environmental Department who will report the different issues changed from time to time in the plant area to Head of Organization under supervision of our senior executive of environment management cell made on.
<b>viii.</b>	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.	The necessary pollution control equipment has been installed and is under regular maintenance for which funds has been earmarked in the annual budget.
<b>ix.</b>	The project authorities should inform to the Regional Office at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	The date of financial closure and final approval of the project has been informed to Regional Office every year.
<b>x.</b>	The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data/information/monitoring reports.	Necessary information shall be furnished as and when requested by the Regional Office of Ministry of Environment and Forests.
<b>xi.</b>	The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office Bhubaneswar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board. The proponent shall upload the status of the compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar, the respective Zonal Officer of Central Pollution Control Board and the State Pollution	Six monthly reports on the status of compliance report of the stipulated environmental clearance conditions including results of monitored data is submitted to the Ministry of Environment and Forests, its Regional Office Bhubaneswar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board.

	Control Board.	
<b>xii.</b>	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad / Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	Environment Clearance letters were sent to concerned Panchayat, Zila Parishad / Municipal Corporation, Urban Local Body.
<b>xiii.</b>	The State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and the Collector's Office/ Tehsildar's Office for 30 days.	Complied by the State Pollution Control Board.
<b>xiv.</b>	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e- mail.	It is submitted every year. And the receiving copy is annexed as Annexure- VIII.
<b>xv.</b>	The project authorities should advertise at least in two local newspapers of the District or State in which the project is located and widely circulated. One of which shall be in the vernacular language of the locality concerned, within 7 days of 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 website of the Ministry of Environment and forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.	Copy of Environmental Clearance has been published in local News and the same was forwarded to the Regional Office of the Ministry located at Bhubaneswar MoEF & CC, New Delhi. And annexed as Annexure-IX.



- Infrastructure Engineering
- Water Resource Management
- Environmental & Social Study

- Surface & Sub-Surface Investigation
- Quality Control & Project Management
- Renewable Energy

- Agricultural Development
- Information Technology
- Public Health Engineering

- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

Ref: ENVLAB/23-24/TR-09711

Date: 05.10.2023

## SIX MONTHLY AVERAGES OF GROUND WATER QUALITY ANALYSIS REPORT (APRIL-2023 TO SEPTEMBER-2023)

1. Name of Client : M/s Anand Exports, Kalinga Nagar, Jajpur
2. Sampling Location : GW1: Near Main Gate
3. Sample Collected by : VCSPL Representative

Sl. No	Parameter	Testing Method	Unit	Standard IS - 10500:2012 Amended on 2015 & 2018	APRIL-23	MAY-23	JUNE-23	JULY-23	AUG-23	SEPT-23	Avg
<b>Essential Characteristics</b>											
1	Colour	Visual Comparison Method APHA 23 <sup>RD</sup> Ed.2017 : 2120 B, C	Hazen	5	<5	<5	<5	<5	<5	<5	<5
2	Odour	Threshold Odour Test APHA 23 <sup>RD</sup> Ed.2017 :2150 B	--	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	Flavor Threshold Test APHA 23 <sup>RD</sup> Ed.2017 : 2160 C	--	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	Nephelometric Method APHA 23 <sup>RD</sup> Ed.2017 :2130 B	NTU	1	0.79	0.83	0.82	0.96	0.92	0.96	0.88
5	pH Value at 25°C	pH Meter APHA 23 <sup>RD</sup> Ed.2017 : 4500H <sup>+</sup> B	--	6.5-8.5	7.01	6.98	7.18	7.12	7.09	7.22	7.10
6	Total Hardness (as CaCO <sub>3</sub> )	EDTA Titrimetric Method APHA 23 <sup>RD</sup> Ed.2017 : 2340 C	mg/l	200	169	158	172	142	156	182	163.2
7	Iron (as Fe)	By AAS Method APHA 23 <sup>RD</sup> Ed.2017 : 3111, B	mg/l	1.0	0.26	0.31	0.27	0.25	0.29	0.26	0.27
8	Chloride (as Cl)	Argentometric Method APHA 23 <sup>RD</sup> Ed.2017 : 4500Cl <sup>-</sup> B	mg/l	250	42.6	46.8	44.6	50.5	48.6	44.2	46.2
9	Residual, free Chlorine	Iodometric Method APHA 23 <sup>RD</sup> Ed.2017 : 4500Cl, B	mg/l	0.2	ND	ND	ND	ND	ND	ND	ND
<b>Desirable Characteristics</b>											
10	Dissolved Solids	Gravimetric Method APHA 23 <sup>RD</sup> Ed.2017 : 2540 C	mg/l	500	236	258	264	282	248	240	254.7
11	Calcium (as Ca)	EDTA Titrimetric Method APHA 23 <sup>RD</sup> Ed.2017 : 3500Ca B	mg/l	75	48.6	50.8	46.8	44.6	50.4	49.2	48.4
12	Magnesium (as Mg)	Calculation Method APHA 23 <sup>RD</sup> Ed.2017 : 3500Mg B	mg/l	30	11.58	7.57	13.40	7.44	7.33	14.37	10.28
13	Copper (as Cu)	By AAS Method APHA 23 <sup>RD</sup> Ed.2017: 3111 B	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
14	Manganese (as Mn)	Persulfate Method APHA 23 <sup>RD</sup> Ed.2017: 3500Mn B	mg/l	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
15	Sulphate (as SO <sub>4</sub> )	Turbidimetric Method APHA 23 <sup>RD</sup> Ed.2017: 4500 SO <sub>4</sub> <sup>2-</sup> E	mg/l	200	23.2	20.1	24.9	28.6	26.2	24.9	24.7
16	Nitrate (as NO <sub>3</sub> )	By UV-Screen Method APHA 23 <sup>RD</sup> Ed.2017: 4500 NO <sub>3</sub> <sup>-</sup> E	mg/l	45	7.1	6.5	6.1	7.3	6.9	7.1	6.8
17	Fluoride (as F)	Distillation followed by Spectrophotometric Method APHA 23 <sup>RD</sup> Ed.2017: 4500F <sup>-</sup> C	mg/l	1.0	0.14	0.12	0.18	0.13	0.11	0.14	0.14
18	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	Chloroform Extraction by Colorimetric Method APHA 23 <sup>RD</sup> Ed.2017: 5530 B,D	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
19	Mercury (as Hg)	AAS Method APHA 23 <sup>RD</sup> Ed.2017: 3112 B	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
20	Cadmium (as Cd)	AAS Method APHA 23 <sup>RD</sup> Ed.2017: 3111 B	mg/l	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
21	Selenium (as Se)	By AAS Method APHA 23 <sup>RD</sup> Ed.2017: 3500 Se C	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
22	Arsenic (as As)	By AAS Method APHA 23 <sup>RD</sup> Ed.2017: 3114 B	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
23	Cyanide (as CN)	Distillation followed by Spectrophotometric Method APHA 23 <sup>RD</sup> Ed.2017: 4500 CN <sup>-</sup> C,D	mg/l	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Lead (as Pb)	By AAS Method APHA 23 <sup>RD</sup> Ed.2017 3111 B	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Zinc (as Zn)	By AAS Method APHA 23 <sup>RD</sup> Ed.2017: 3111 B	mg/l	5	1.1	1.4	1.3	1.0	1.2	1.1	1.2
27	Chromium (as Cr <sup>+6</sup> )	Diphenyl Carbazide Method APHA 23 <sup>RD</sup> Ed.2017: 3500Cr B	mg/l	--	0.009	0.012	0.011	0.013	0.016	0.015	0.013
29	Alkalinity	Titration Method APHA 23 <sup>RD</sup> Ed.2017:2320 B	mg/l	200	180	178	164	192	188	176	179.7
30	Aluminium as( Al)	AAS Method APHA 23 <sup>RD</sup> Ed.2017: 3111 D	mg/l	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
31	Boron (as B)	Curcumin Method APHA 23 <sup>RD</sup> Ed.2017: 4500B, B	mg/l	0.5	0.47	0.42	0.39	0.44	0.48	0.44	0.44





# Visiontek Consultancy Services Pvt. Ltd.

(Committed For Better Environment)

Certified for : ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 (OH&S), ISO/IEC 17025:2017

Accredited by : NABET-A Grade, MOEF & CC/CPCB & SPCB-A Grade

- Infrastructure Engineering
- Water Resource Management
- Environmental & Social Study

- Surface & Sub-Surface Investigation
- Quality Control & Project Management
- Renewable Energy

- Agricultural Development
- Information Technology
- Public Health Engineering

- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

### Laboratory Services

- Environment Lab
- Food Lab
- Material Lab
- Soil Lab
- Mineral Lab
- &
- Microbiology Lab

32	Total Coliform as TC	MPN Method APHA 23 <sup>RD</sup> Ed,2017 : 9221 b	MPN/ 100ml	Shall not be detectable in any 100ml sample	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
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CL – Colourless, U/O – Unobjectionable, ND – Not detected.

BDL (Below detection limit) Values : (Cu<0.05 mg/l, Mn<0.005 mg/l, C<sub>6</sub>H<sub>5</sub>OH<0.001 mg/l, Hg<0.005mg/l, Cd<0.001 mg/l, Se<0.001 mg/l, As<0.001 mg/l, Pb<0.01 mg/l, Zn<0.05 mg/l, Cr<sup>+6</sup><0.05 mg/l, Al<0.001 mg/l, B<0.01 mg/l, NO<sub>3</sub><0.01 mg/l)

*P. Patil*

Reviewed By



*P. Patil*

Approved By



- Infrastructure Engineering
- Water Resource Management
- Environmental & Social Study

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Ref: ENVLAB/23-24/TR-09712

Date: 05.10.2023

## SIX MONTHLY AVERAGES OF GROUND WATER QUALITY ANALYSIS REPORT (APRIL-2023 TO SEPTEMBER-2023)

1. Name of Client : M/s Anand Exports, Kalinga Nagar, Jajpur
2. Sampling Location : GW2: Near Staff Quarter Site
3. Sample Collected by : VCSPL Representative

Sl. No.	Parameter	Testing Method	Unit	Standard IS - 10500:2012 Amended on 2015 & 2018	APRIL-23	MAY-23	JUNE-23	JULY-23	AUG-23	SEPT-23	Avg
<b>Essential Characteristics</b>											
1	Colour	Visual Comparison Method APHA 23 <sup>RD</sup> Ed.2017 : 2120 B, C	Hazen	5	<5	<5	<5	<5	<5	<5	<5
2	Odour	Threshold Odour Test APHA 23 <sup>RD</sup> Ed.2017 :2150 B	--	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	Flavor Threshold Test APHA 23 <sup>RD</sup> Ed.2017 : 2160 C	--	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	Nephelometric Method APHA 23 <sup>RD</sup> Ed.2017 :2130 B	NTU	1	0.83	0.81	0.79	0.80	0.86	0.93	0.84
5	pH Value at 25°C	pH Meter APHA 23 <sup>RD</sup> Ed.2017 : 4500H <sup>+</sup> B	--	6.5-8.5	6.98	7.05	7.13	6.85	7.24	7.16	7.07
6	Total Hardness (as CaCO <sub>3</sub> )	EDTA Titrimetric Method APHA 23 <sup>RD</sup> Ed.2017 : 2340 C	mg/l	200	138	148	136	140	138	144	140.7
7	Iron (as Fe)	By AAS Method APHA 23 <sup>RD</sup> Ed.2017 : 3111, B	mg/l	1.0	0.21	0.26	0.24	0.29	0.31	0.27	0.26
8	Chloride (as Cl <sup>-</sup> )	Argentometric Method APHA 23 <sup>RD</sup> Ed.2017 : 4500Cl <sup>-</sup> B	mg/l	250	38.9	42.4	48.5	44.6	48.6	54.2	46.2
9	Residual, free Chlorine	Iodometric Method APHA 23 <sup>RD</sup> Ed.2017 : 4500Cl <sup>-</sup> B	mg/l	0.2	ND	ND	ND	ND	ND	ND	ND
<b>Desirable Characteristics</b>											
10	Dissolved Solids	Gravimetric Method APHA 23 <sup>RD</sup> Ed.2017 : 2540 C	mg/l	500	268	284	310	314	298	305	296.5
11	Calcium (as Ca <sup>+</sup> )	EDTA Titrimetric Method APHA 23 <sup>RD</sup> Ed.2017 : 3500Ca B	mg/l	75	43.6	40.8	46.5	53.8	52.5	51.9	48.2
12	Magnesium (as Mg)	Calculation Method APHA 23 <sup>RD</sup> Ed.2017 : 3500Mg B	mg/l	30	7.08	11.21	4.83	3.62	1.68	3.50	5.32
13	Copper (as Cu)	By AAS Method APHA 23 <sup>RD</sup> Ed.2017: 3111 B	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
14	Manganese (as Mn)	Persulfate Method APHA 23 <sup>RD</sup> Ed.2017: 3500Mn B	mg/l	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
15	Sulphate (as SO <sub>4</sub> )	Turbidimetric Method APHA 23 <sup>RD</sup> Ed.2017: 4500 SO <sub>4</sub> <sup>2-</sup> E	mg/l	200	20.9	19.8	22.4	20.3	22.8	21.6	21.3
16	Nitrate (as NO <sub>3</sub> )	By UV-Screen Method APHA 23 <sup>RD</sup> Ed.2017: 4500 NO <sub>3</sub> <sup>-</sup> E	mg/l	45	5.6	4.9	5.3	5.8	6.2	6.0	5.6
17	Fluoride (as F)	Distillation followed by Spectrophotometric Method APHA 23 <sup>RD</sup> Ed.2017: 4500F <sup>-</sup> C	mg/l	1.0	0.16	0.19	0.21	0.20	0.17	0.15	0.18
18	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	Chloroform Extraction by Colorimetric Method APHA 23 <sup>RD</sup> Ed.2017: 5530 B,D	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
19	Mercury (as Hg)	AAS Method APHA 23 <sup>RD</sup> Ed.2017: 3112 B	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
20	Cadmium (as Cd)	AAS Method APHA 23 <sup>RD</sup> Ed.2017: 3111 B	mg/l	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
21	Selenium (as Se)	By AAS Method APHA 23 <sup>RD</sup> Ed.2017: 3500 Se C	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
22	Arsenic (as As)	By AAS Method APHA 23 <sup>RD</sup> Ed.2017: 3114 B	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
23	Cyanide (as CN)	Distillation followed by Spectrophotometric Method APHA 23 <sup>RD</sup> Ed.2017: 4500 CN <sup>-</sup> C,D	mg/l	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Lead (as Pb)	By AAS Method APHA 23 <sup>RD</sup> Ed.2017 3111 B	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Zinc (as Zn)	By AAS Method APHA 23 <sup>RD</sup> Ed.2017: 3111 B	mg/l	5	2.4	2.2	2.1	1.9	2.3	2.2	2.2
27	Chromium (as Cr <sup>+6</sup> )	Diphenyl Carbazide Method APHA 23 <sup>RD</sup> Ed.2017: 3500Cr B	mg/l	--	0.016	0.013	0.014	0.009	0.010	0.013	0.013
29	Alkalinity	Titration Method APHA 23 <sup>RD</sup> Ed.2017:2320 B	mg/l	200	220	213	208	224	231	219	219.17



# Visiontek Consultancy Services Pvt. Ltd.

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- Public Health Engineering

- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

### Laboratory Services

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- Food Lab
- Material Lab
- Soil Lab
- Mineral Lab
- &
- Microbiology Lab

30	Aluminium as( Al)	AAS Method APHA 23 <sup>RD</sup> Ed,2017: 3111 D	mg/l	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
31	Boron (as B)	Curcumin Method APHA 23 <sup>RD</sup> Ed,2017: 4500B, B	mg/l	0.5	0.52	0.59	0.60	0.48	0.55	0.46	0.53
32	Total Coliform as TC	MPN Method APHA 23 <sup>RD</sup> Ed,2017: 9221 b	MPN/100ml	Shall not be detectable in any 100ml sample	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8

CL – Colourless, U/O – Unobjectionable, ND – Not detected.

BDL (Below detection limit) Values : (Cu<0.05 mg/l, Mn<0.005 mg/l, C<sub>6</sub>H<sub>5</sub>OH<0.001 mg/l, Hg<0.005mg/l, Cd<0.001 mg/l, Se<0.001 mg/l, As<0.001 mg/l, Pb<0.01 mg/l, Zn<0.05 mg/l, Cr<sup>6+</sup><0.05 mg/l, Al<0.001 mg/l, B<0.01 mg/l, NO<sub>3</sub><0.01 mg/l)

*[Signature]*

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- Waste Management Services

Ref: ENVLAB/23-24/TR-09713

Date: 05.10.2023

## SIX MONTHLY AVERAGES OF GROUND WATER QUALITY ANALYSIS REPORT

(APRIL-2023 TO SEPTEMBER-2023)

1. Name of Client : M/s Anand Exports, Kalinga Nagar, Jajpur
2. Sampling Location : GW3: Near Old Office Building Site
3. Sample Collected by : VCSPL Representative

Sl. No.	Parameter	Testing Method	Unit	Standard IS -10500:2012 Amended on 2015 & 2018	APRIL-23	MAY-23	JUNE-23	JULY-23	AUG-23	SEPT-23	Avg
<b>Essential Characteristics</b>											
1	Colour	Visual Comparison Method APHA 23 <sup>RD</sup> Ed.2017 : 2120 B, C	Hazen	5	<5	<5	<5	<5	<5	<5	<5
2	Odour	Threshold Odour Test APHA 23 <sup>RD</sup> Ed.2017 : 2150 B	--	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	Flavor Threshold Test APHA 23 <sup>RD</sup> Ed.2017 : 2160 C	--	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	Nephelometric Method APHA 23 <sup>RD</sup> Ed.2017 : 2130 B	NTU	1	1.2	1.4	1.1	1.0	0.9	1.2	1.13
5	pH Value at 25°C	pH Meter APHA 23 <sup>RD</sup> Ed.2017 : 4500H <sup>+</sup> B	--	6.5-8.5	6.96	7.05	7.11	6.89	7.08	7.12	7.04
6	Total Hardness (as CaCO <sub>3</sub> )	EDTA Titrimetric Method APHA 23 <sup>RD</sup> Ed.2017 : 2340 C	mg/l	200	120	128	116	122	107	116	118.2
7	Iron (as Fe)	By AAS Method APHA 23 <sup>RD</sup> Ed.2017 : 3111, B	mg/l	1.0	0.16	0.20	0.18	0.23	0.20	0.21	0.20
8	Chloride (as Cl <sup>-</sup> )	Argentometric Method APHA 23 <sup>RD</sup> Ed.2017 : 4500Cl <sup>-</sup> B	mg/l	250	36.5	34.9	33.5	34.1	33.2	30.2	33.7
9	Residual, free Chlorine	Iodometric Method APHA 23 <sup>RD</sup> Ed.2017 : 4500Cl <sub>2</sub> B	mg/l	0.2	ND	ND	ND	ND	ND	ND	ND
<b>Desirable Characteristics</b>											
10	Dissolved Solids	Gravimetric Method APHA 23 <sup>RD</sup> Ed.2017 : 2540 C	mg/l	500	242	229	231	238	232	226	233.0
11	Calcium (as Ca)	EDTA Titrimetric Method APHA 23 <sup>RD</sup> Ed.2017 : 3500Ca B	mg/l	75	30.2	34.6	32.2	31.9	30.8	32.4	32.0
12	Magnesium (as Mg)	Calculation Method APHA 23 <sup>RD</sup> Ed.2017 : 3500Mg B	mg/l	30	10.84	10.11	8.65	10.29	7.31	8.53	9.29
13	Copper (as Cu)	By AAS Method APHA 23 <sup>RD</sup> Ed.2017: 3111 B	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
14	Manganese (as Mn)	Persulfate Method APHA 23 <sup>RD</sup> Ed.2017: 3500Mn B	mg/l	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
15	Sulphate (as SO <sub>4</sub> )	Turbidimetric Method APHA 23 <sup>RD</sup> Ed.2017: 4500 SO <sub>4</sub> <sup>2-</sup> E	mg/l	200	13.5	12.9	14.2	13.6	12.8	14.5	13.6
16	Nitrate (as NO <sub>3</sub> )	By UV-Screen Method APHA 23 <sup>RD</sup> Ed.2017: 4500 NO <sub>3</sub> <sup>-</sup> E	mg/l	45	5.5	6.1	5.9	5.3	5.1	4.8	5.5
17	Fluoride (as F)	Distillation followed by Spectrophotometric Method APHA 23 <sup>RD</sup> Ed.2017: 4500F <sup>-</sup> C	mg/l	1.0	0.13	0.10	0.09	0.12	0.15	0.11	0.1
18	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	Chloroform Extraction by Colorimetric Method APHA 23 <sup>RD</sup> Ed.2017: 5530 B,D	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
19	Mercury (as Hg)	AAS Method APHA 23 <sup>RD</sup> Ed.2017: 3112 B	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
20	Cadmium (as Cd)	AAS Method APHA 23 <sup>RD</sup> Ed.2017: 3111 B	mg/l	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
21	Selenium (as Se)	By AAS Method APHA 23 <sup>RD</sup> Ed.2017: 3500 Se C	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
22	Arsenic (as As)	By AAS Method APHA 23 <sup>RD</sup> Ed.2017: 3114 B	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
23	Cyanide (as CN)	Distillation followed by Spectrophotometric Method APHA 23 <sup>RD</sup> Ed.2017: 4500 CN <sup>-</sup> C,D	mg/l	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Lead (as Pb)	By AAS Method APHA 23 <sup>RD</sup> Ed.2017 3111 B	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Zinc (as Zn)	By AAS Method APHA 23 <sup>RD</sup> Ed.2017: 3111 B	mg/l	5	1.3	1.5	1.1	1.6	1.4	1.2	1.4
27	Chromium (as Cr+6)	Diphenyl Carbazide Method APHA 23 <sup>RD</sup> Ed.2017: 3500Cr B	mg/l	--	0.012	0.015	0.013	0.014	0.010	0.011	0.13
29	Alkalinity	Titration Method APHA 23 <sup>RD</sup> Ed.2017:2320 B	mg/l	200	152	148	150	141	138	144	120.5
30	Aluminium as( Al)	AAS Method	mg/l	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01



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- &
- Microbiology Lab

		APHA 23 <sup>RD</sup> Ed,2017: 3111 D									
31	Boron (as B)	Curcumin Method APHA 23 <sup>RD</sup> Ed,2017: 4500B, B	mg/l	0.5	0.33	0.31	0.29	0.34	0.30	0.26	0.25
32	Total Coliform as TC	MPN Method APHA 23 <sup>RD</sup> Ed,2017 : 9221 b	MPN/ 100ml	Shall not be detectable in any 100ml sample	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8

CL – Colourless, U/O – Unobjectionable, ND – Not detected.

BDL (Below detection limit) Values : (Cu<0.05 mg/l, Mn<0.005 mg/l, C<sub>6</sub>H<sub>5</sub>OH<0.001 mg/l, Hg<0.005mg/l, Cd<0.001 mg/l, Se<0.001 mg/l, As<0.001 mg/l, Pb<0.01 mg/l, Zn<0.05 mg/l, Cr<sup>6+</sup><0.05 mg/l, Al<0.001 mg/l, B<0.01 mg/l, NO<sub>3</sub><0.01 mg/l)

*B. Patil*  
Reviewed By



*P. Patil*  
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Ref: ENVLAB/23-24/TR-09714

Date: 05.10.2023

## SIX MONTHLY AVERAGES OF SOIL QUALITY ANALYSIS REPORT (APRIL-2023 TO SEPTEMBER-2023)

1. Name of Industry : M/s Anand Exports, Kalinga Nagar , Jajpur
2. Sampling Location : S1: Soil From Main Gate Left Site
3. Sample Collected By : VCSPL Representative in presence of Client's Representative

Sl. No.	Name of the Parameters	Unit	Testing Method	Analysis Result						
				APRIL-23	MAY-23	JUNE-23	JULY-23	AUG-23	SEPT-23	AVG
1	Colour	--	--	Reddish Brown	Reddish Brown	Reddish Brown	Reddish Brown	Reddish Brown	Reddish Brown	Reddish Brown
2	Type of Soil	--	--	Acidic	Acidic	Acidic	Acidic	Acidic	Acidic	Acidic
3	pH at 250C	--	IS 2720 (P-26) 1987, RA 2016	6.54	6.43	6.57	6.61	6.63	6.59	6.56
4	Soil Texture	%	Methods of Soil Analyses Black 1965 American Society of Agronomy USA	Sandy Loam	Sandy Loam	Loam	Sandy Loam	Loam	Loam	---
5	Bulk Density	gm/cc	USDA 1954 , RA 2010	1.31	1.29	1.57	1.44	2.36	2.54	1.75
6	Moisture content	%	IS 2720 (Part-2) 1973, RA 2015	6.2	5.8	8.7	6.1	8.3	9.1	7.37
7	Chloride as Cl	%	USDA 1954, RA 2010, Page 133	9.3	8.7	7.6	9.4	8.8	8.4	8.70
8	Sulphate as SO4	mg/kg	IS 2720 (P-27) 1977 RA 2015	32.4	29.8	34.9	32.8	41.8	39.6	35.22
9	Available Potassium as K	mg/kg	Method of Analysis of Soil by HLS.Tandon	1.49	1.51	2.36	1.61	2.52	2.66	2.03
10	Phosphorous as P	mg/kg	Method of Analysis of Soil by HLS.Tandon	3.6	4.1	4.7	5.2	4.3	4.8	4.45
11	Iron as Fe	mg/kg	EPA 3050B, 7000B Rev 02, 1996	10530	10570	10760	11087	11079	11245	10878.50
12	Organic Carbon	%	Method of Analysis of Soil by HLS.Tandon	1.29	1.27	1.58	1.35	1.68	1.63	1.47
13	Organic Matter	%	Method of Analysis of Soil by HLS.Tandon	2.38	2.24	3.65	2.44	3.57	3.43	2.95
14	Available Nitrogen as N	mg/kg	Method of Analysis of Soil by HLS.Tandon	0.24	0.26	0.57	0.29	0.54	0.63	0.42
15	Electrical Conductivity	µS/cm	IS:14767:2000 ( RA 2016 )	154.4	169.9	187.6	155.2	189.1	187.2	173.90
16	Silica as SiO2	mg/kg	Method of Analysis of Soil by HLS.Tandon	13.7	14.2	10.2	15.4	9.2	9.4	12.02

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Ref: ENVLAB/23-24/TR-09715


Date: 05.10.2023

## SIX MONTHLY AVERAGES OF SOIL QUALITY ANALYSIS REPORT

(APRIL-2023 TO SEPTEMBER-2023)

1. Name of Industry : M/s Anand Exports, Kalinga Nagar , Jajpur
2. Sampling Location : S2: Soil From Near Staff Quarter Site
3. Sample Collected By : VCSPL Representative in presence of Client's Representative

Sl. No.	Name of the Parameters	Unit	Testing Method	Analysis Result						
				APRIL-23	MAY-23	JUNE-23	JULY-23	AUG-23	SEPT-23	AVG
1	Colour	--	--	Brown	Brown	Brown	Brown	Brown	Brown	Brown
2	Type of Soil	--	--	Basic	Basic	Basic	Basic	Basic	Basic	Basic
3	pH at 250C	--	IS 2720 (P-26) 1987, RA 2016	6.57	6.46	6.59	6.74	6.63	6.79	6.63
4	Soil Texture	%	Methods of Soil Analyses Black 1965 American Society of Agronomy USA	Sandy Loam	Loam	Loam	Sandy Loam	Loam	Loam	Loam
5	Bulk Density	gm/cc	USDA 1954 , RA 2010	1.27	1.49	2.36	1.24	2.57	2.67	1.93
6	Moisture content	%	IS 2720 (Part-2) 1973, RA 2015	5.9	7.4	7.7	6.3	8.4	9.1	7.47
7	Chloride as Cl	%	USDA 1954, RA 2010, Page 133	7.7	6.9	6.8	7.9	5.9	7.1	7.05
8	Sulphate as SO4	mg/kg	IS 2720 (P-27) 1977 RA 2015	34.6	27.3	28.1	32.4	24.7	25.3	28.73
9	Available Potassium as K	mg/kg	Method of Analysis of Soil by HLS.Tandon	1.37	1.23	1.25	1.42	1.31	1.29	1.31
10	Phosphorous as P	mg/kg	Method of Analysis of Soil by HLS.Tandon	4.7	4.4	5.4	6.2	5.7	5.9	5.38
11	Iron as Fe	mg/kg	EPA 3050B, 7000B Rev 02, 1996	10537	9762	9648	10227	9647	10098	9986.50
12	Organic Carbon	%	Method of Analysis of Soil by HLS.Tandon	1.26	2.57	2.65	2.68	3.82	2.69	2.61
13	Organic Matter	%	Method of Analysis of Soil by HLS.Tandon	2.32	5.79	5.72	2.23	4.26	4.31	4.11
14	Available Nitrogen as N	mg/kg	Method of Analysis of Soil by HLS.Tandon	0.32	1.29	1.23	0.54	1.59	1.55	1.09
15	Electrical Conductivity	µS/cm	IS:14767:2000 ( RA 2016 )	166.7	189.4	184.6	172.8	188.2	184.6	181.05
16	Silica as SiO2	mg/kg	Method of Analysis of Soil by HLS.Tandon	14.7	8.5	10.3	12.7	8.9	9.3	10.73

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Ref: ENVLAB/23-24/TR-09716

Date: 05.10.2023

## SIX MONTHLY AVERAGES OF SOIL QUALITY ANALYSIS REPORT

(APRIL-2023 TO SEPTEMBER-2023)

1. Name of Industry : M/s Anand Exports, Kalinga Nagar , Jajpur
2. Sampling Location : S3: Soil From Old Office Building site
3. Sample Collected By : VCSPL Representative in presence of Client's Representative

Sl. No.	Name of the Parameters	Unit	Testing Method	Analysis Result						
				APRIL-23	MAY-23	JUNE-23	JULY-23	AUG-23	SEPT-23	AVG
1	Colour	--	--	Reddish Brown	Reddish Brown	Reddish Brown	Reddish Brown	Reddish Brown	Reddish Brown	Reddish Brown
2	Type of Soil	--	--	Basic	Basic	Basic	Basic	Basic	Basic	Basic
3	pH at 250C	--	IS 2720 (P-26) 1987, RA 2016	6.62	6.57	6.68	6.79	6.82	6.86	6.72
4	Soil Texture	%	Methods of Soil Analyses Black 1965 American Society of Agronomy USA	Loamy	Loamy	Loam	Sandy Loam	Sandy Loam	Sandy Loam	--
5	Bulk Density	gm/cc	USDA 1954 , RA 2010	4.48	3.56	5.95	2.31	1.46	1.59	3.23
6	Moisture content	%	IS 2720 (Part-2) 1973, RA 2015	7.8	9.3	7.6	5.6	6.7	5.5	7.08
7	Chloride as Cl	%	USDA 1954, RA 2010, Page 133	8.6	9.3	8.4	6.9	7.1	7.9	8.03
8	Sulphate as SO4	mg/kg	IS 2720 (P-27)1977 RA 2015	36.6	33.8	27.8	25.2	31.6	38.4	32.23
9	Available Potassium as K	mg/kg	Method of Analysis of Soil by HLS.Tandon	1.71	1.86	1.46	1.35	1.76	1.84	1.66
10	Phosphorous as P	mg/kg	Method of Analysis of Soil by HLS.Tandon	5.9	6.3	3.7	2.9	4.1	5.3	4.70
11	Iron as Fe	mg/kg	EPA 3050B, 7000B Rev 02, 1996	9853	9954	9563	9436	9667	10540	9835.50
12	Organic Carbon	%	Method of Analysis of Soil by HLS.Tandon	1.32	1.43	1.22	1.18	1.30	1.65	1.35
13	Organic Matter	%	Method of Analysis of Soil by HLS.Tandon	3.68	3.76	2.94	2.87	3.26	4.21	3.45
14	Available Nitrogen as N	mg/kg	Method of Analysis of Soil by HLS.Tandon	0.29	0.31	0.24	0.22	0.34	0.53	0.32
15	Electrical Conductivity	μS/cm	IS:14767:2000 ( RA 2016 )	167.8	177.6	153.8	149.7	190.8	208.4	174.68
16	Silica as SiO2	mg/kg	Method of Analysis of Soil by HLS.Tandon	8.8	7.2	7.0	14.6	13.4	15.8	11.13

Prepared By: 



Verified By: 







- Infrastructure Engineering
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- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

Ref: ENVLAB/23-24/TR-09717

Date: 05.10.2023

## SIX MONTHLY AVERAGES OF SOIL QUALITY ANALYSIS REPORT

(APRIL-2023 TO SEPTEMBER-2023)

1. Name of Industry : M/s Anand Exports, Kalinga Nagar , Jajpur
2. Sampling Location : S4: Soil From Near Crusher Site
3. Sample Collected By : VCSPL Representative in presence of Client's Representative

Sl. No.	Name of the Parameters	Unit	Testing Method	Analysis Result						
				APRIL-23	MAY-23	JUNE-23	JULY-23	AUG-23	SEPT-23	AVG
1	Colour	--	--	Brown	Brown	Reddish Brown	Reddish Brown	Brown	Reddish Brown	Reddish Brown
2	Type of Soil	--	--	Acidic	Acidic	Acidic	Acidic	Acidic	Acidic	Acidic
3	pH at 250C	--	IS 2720 (P-26) 1987, RA 2016	6.44	6.32	6.47	6.43	6.52	6.40	6.43
4	Soil Texture	%	Methods of Soil Analyses Black 1965 American Society of Agronomy USA	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam
5	Bulk Density	gm/cc	USDA 1954 , RA 2010	1.23	1.28	1.30	1.26	1.46	2.12	1.44
6	Moisture content	%	IS 2720 (Part-2) 1973, RA 2015	6.1	6.6	7.7	8.2	7.4	6.4	7.07
7	Chloride as Cl	%	USDA 1954, RA 2010, Page 133	8.3	8.8	7.6	6.5	8.4	9.2	8.13
8	Sulphate as SO4	mg/kg	IS 2720 (P-27) 1977 RA 2015	28.8	30.6	29.4	31.7	35.4	37.2	32.18
9	Available Potassium as K	mg/kg	Method of Analysis of Soil by HLS.Tandon	1.45	1.47	1.32	1.36	1.44	1.51	1.43
10	Phosphorous as P	mg/kg	Method of Analysis of Soil by HLS.Tandon	4.7	4.9	3.8	3.6	5.4	5.9	4.72
11	Iron as Fe	mg/kg	EPA 3050B, 7000B Rev 02, 1996	10130	10257	10024	10069	10234	10265	10163.17
12	Organic Carbon	%	Method of Analysis of Soil by HLS.Tandon	1.37	1.46	1.38	1.39	1.53	1.59	1.45
13	Organic Matter	%	Method of Analysis of Soil by HLS.Tandon	2.31	2.54	1.65	1.42	2.38	2.46	2.13
14	Available Nitrogen as N	mg/kg	Method of Analysis of Soil by HLS.Tandon	0.35	0.39	0.26	0.28	0.37	0.42	0.35
15	Electrical Conductivity	µS/cm	IS:14767:2000 ( RA 2016 )	179.7	182.6	164.6	161.2	183.6	186.2	176.32
16	Silica as SiO2	mg/kg	Method of Analysis of Soil by HLS.Tandon	9.6	9.3	10.3	10.6	8.9	9.2	9.65

Prepared By:



Verified By:





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- Renewable Energy

- Agricultural Development
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- Public Health Engineering

- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

Ref: ENVLAB/23-24/TR-09718

Date: 05.10.2023

## SIX MONTHLY AVERAGE OF AMBIENT AIR QUALITY MONITORING REPORT

### (APRIL-2023 TO SEPTEMBER-2023) CORE ZONE

1. Name of Industry : M/s. Anand Exports, Kalinga Nagar , Jajpur
2. Sampling Location : AAQMS-1 : Near Old Office Building Site
3. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler.
4. Sample collected by : VCSPL representative

Date	PARAMETERS											
	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>x</sub> (µg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	BaP (ng/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	As (ng/m <sup>3</sup> )
APRIL-23	58.6	33.2	4.7	11.8	9.7	0.24	BDL	BDL	BDL	BDL	BDL	BDL
MAY-23	61.8	35.3	4.4	10.4	10.2	0.31	BDL	BDL	BDL	BDL	BDL	BDL
JUNE-23	54.6	29.5	3.8	9.2	7.6	0.19	BDL	BDL	BDL	BDL	BDL	BDL
JULY-23	50.8	26.7	3.2	8.4	8.4	0.16	BDL	BDL	BDL	BDL	BDL	BDL
AUG-23	57.4	32.6	4.3	10.2	10.7	0.36	BDL	BDL	BDL	BDL	BDL	BDL
SEPT-23	63.5	35.3	6.7	16.4	13.2	0.44	BDL	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	5	1	20	1	6
Monthly Average	57.8	32.1	4.5	11.1	10.0	0.28	BDL	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Geake method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling

BDL Values: SO<sub>2</sub> < 4 µg/m<sup>3</sup>, NO<sub>x</sub> < 9 µg/m<sup>3</sup>, O<sub>3</sub> < 4 µg/m<sup>3</sup>, CO < 0.1 mg/m<sup>3</sup>, NH<sub>3</sub> < 20 µg/m<sup>3</sup>, C<sub>6</sub>H<sub>6</sub> < 0.001 µg/m<sup>3</sup>, BaP < 0.002 ng/m<sup>3</sup>, Ni < 0.01 ng/m<sup>3</sup>, Pb < 0.001 µg/m<sup>3</sup>, As < 0.001 ng/m<sup>3</sup>.

Reviewed by:



Approved by: P. Patil





- Infrastructure Engineering
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- Environmental & Social Study

- Surface & Sub-Surface Investigation
- Quality Control & Project Management
- Renewable Energy

- Agricultural Development
- Information Technology
- Public Health Engineering

- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

Ref: ENVLAB/23-24/TR-09719

Date: 05.10.2023

## SIX MONTHLY AVERAGE OF AMBIENT AIR QUALITY MONITORING REPORT (APRIL-2023 TO SEPTEMBER-2023) CORE ZONE

1. Name of Industry : M/s. Anand Exports, Kalinga Nagar , Jajpur
2. Sampling Location : AAQMS-2 : Near Washing Plant
3. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler.
4. Sample collected by : VCSPL representative

Date	PARAMETERS											
	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>x</sub> (µg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	BaP (ng/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	As (ng/m <sup>3</sup> )
April-23	62.2	30.8	6.5	13.2	10.4	0.36	BDL	BDL	BDL	BDL	BDL	BDL
May-23	66.4	34.9	8.4	15.7	14.2	0.54	BDL	BDL	BDL	BDL	BDL	BDL
June-23	59.6	29.4	5.6	12.4	13.8	0.29	BDL	BDL	BDL	BDL	BDL	BDL
July-23	55.2	32.5	4.8	10.7	9.6	0.21	BDL	BDL	BDL	BDL	BDL	BDL
August-23	64.8	33.8	9.1	16.2	14.4	0.59	BDL	BDL	BDL	BDL	BDL	BDL
September-23	61.5	31.5	7.9	15.4	13.2	0.49	BDL	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	5	1	20	1	6
Monthly Average	61.6	32.2	7.1	13.9	12.6	0.41	BDL	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Geake method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling

BDL Values: SO<sub>2</sub> < 4 µg/m<sup>3</sup>, NO<sub>x</sub> < 9 µg/m<sup>3</sup>, O<sub>3</sub> < 4 µg/m<sup>3</sup>, CO < 0.1 mg/m<sup>3</sup>, NH<sub>3</sub> < 20 µg/m<sup>3</sup>, C<sub>6</sub>H<sub>6</sub> < 0.001 µg/m<sup>3</sup>, BaP < 0.002 ng/m<sup>3</sup>, Ni < 0.01 ng/m<sup>3</sup>, Pb < 0.001 µg/m<sup>3</sup>, As < 0.001 ng/m<sup>3</sup>.

Reviewed by:



Approved by:



P. Pati



- Infrastructure Engineering
- Water Resource Management
- Environmental & Social Study

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- Quality Control & Project Management
- Renewable Energy

- Agricultural Development
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- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

Ref: ENVLAB/23-24/TR-09720

Date: 05.10.2023

## SIX MONTHLY AVERAGE OF AMBIENT AIR QUALITY MONITORING REPORT

### (APRIL-2023 TO SEPTEMBER-2023) BUFFER ZONE

- Name of Industry : M/s. Anand Exports, Kalinga Nagar , Jajpur
- Sampling Location : AAQMS-1 : Near Staff Quarter Site
- Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler.
- Sample collected by : VCSPL representative

Date	PARAMETERS											
	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>x</sub> (µg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	BaP (ng/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	As (ng/m <sup>3</sup> )
April-23	60.5	34.3	4.8	16.2	8.3	0.42	BDL	BDL	BDL	BDL	BDL	BDL
May-23	63.4	32.7	6.7	18.4	8.9	0.67	BDL	BDL	BDL	BDL	BDL	BDL
June-23	59.7	34.2	5.2	17.6	9.2	0.39	BDL	BDL	BDL	BDL	BDL	BDL
July-23	57.2	33.2	5.8	15.8	7.3	0.32	BDL	BDL	BDL	BDL	BDL	BDL
August-23	60.2	35.3	6.7	17.6	8.3	0.49	BDL	BDL	BDL	BDL	BDL	BDL
September-23	57.4	34.6	5.9	15.7	7.3	0.41	BDL	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	5	1	20	1	6
Monthly Average	59.7	34.1	5.9	16.9	8.2	0.45	BDL	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Geake method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling

BDL Values: SO<sub>2</sub> < 4 µg/m<sup>3</sup>, NO<sub>x</sub> < 9 µg/m<sup>3</sup>, O<sub>3</sub> < 4 µg/m<sup>3</sup>, CO < 0.1 mg/m<sup>3</sup>, NH<sub>3</sub> < 20 µg/m<sup>3</sup>, C<sub>6</sub>H<sub>6</sub> < 0.001 µg/m<sup>3</sup>, BaP < 0.002 ng/m<sup>3</sup>, Ni < 0.01 ng/m<sup>3</sup>, Pb < 0.001 µg/m<sup>3</sup>, As < 0.001 ng/m<sup>3</sup>.

Reviewed by:



Approved by:



P. Patil



- Infrastructure Engineering
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- Quality Control & Project Management
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- Mineral/Sub-Soil Exploration
- Waste Management Services

Ref: ENVLAB/23-24/TR-09721

Date: 05.10.2023

## SIX MONTHLY AVERAGE OF AMBIENT AIR QUALITY MONITORING REPORT

### (APRIL-2023 TO SEPTEMBER-2023) BUFFER ZONE

- Name of Industry : M/s. Anand Exports, Kalinga Nagar , Jajpur
- Sampling Location : AAQMS-2 : Near Main Gate Site
- Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler.
- Sample collected by : VCSPL representative

Date	PARAMETERS											
	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>x</sub> (µg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	BaP (ng/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	As (ng/m <sup>3</sup> )
April-23	45.6	27.4	5.2	15.4	10.6	0.46	BDL	BDL	BDL	BDL	BDL	BDL
May-23	48.8	29.3	6.6	17.2	9.4	0.39	BDL	BDL	BDL	BDL	BDL	BDL
June-23	44.8	25.4	5.7	14.8	8.7	0.37	BDL	BDL	BDL	BDL	BDL	BDL
July-23	43.7	26.8	4.1	13.4	7.1	0.35	BDL	BDL	BDL	BDL	BDL	BDL
August-23	44.7	27.3	4.6	12.6	8.3	0.36	BDL	BDL	BDL	BDL	BDL	BDL
September-23	49.2	29.5	4.1	10.2	10.4	0.56	BDL	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	5	1	20	1	6
Monthly Average	46.1	27.6	5.1	13.9	9.1	0.42	BDL	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Geake method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling

BDL Values: SO<sub>2</sub> < 4 µg/m<sup>3</sup>, NO<sub>x</sub> < 9 µg/m<sup>3</sup>, O<sub>3</sub> < 4 µg/m<sup>3</sup>, CO < 0.1 mg/m<sup>3</sup>, NH<sub>3</sub> < 20 µg/m<sup>3</sup>, C<sub>6</sub>H<sub>6</sub> < 0.001 µg/m<sup>3</sup>, BaP < 0.002 ng/m<sup>3</sup>, Ni < 0.01 ng/m<sup>3</sup>, Pb < 0.001 µg/m<sup>3</sup>, As < 0.001 ng/m<sup>3</sup>.

Reviewed by:



Approved by:



P. Patil



- Infrastructure Engineering
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- Public Health Engineering

- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

Ref: ENVLAB/23-24/TR-09722

Date: 05.10.2023

## SIX MONTHLY AVERAGE OF AMBIENT AIR QUALITY MONITORING REPORT

### (APRIL-2023 TO SEPTEMBER-2023) BUFFER ZONE

1. Name of Industry : M/s. Anand Exports, Kalinga Nagar , Jajpur
2. Sampling Location : AAQMS-3 : Near Crusher Site
3. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler.
4. Sample collected by : VCSPL representative

Date	PARAMETERS											
	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>x</sub> (µg/m <sup>3</sup> )	O <sub>3</sub> (µg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	NH <sub>3</sub> (µg/m <sup>3</sup> )	C <sub>6</sub> H <sub>6</sub> (µg/m <sup>3</sup> )	BaP (ng/m <sup>3</sup> )	Ni (ng/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	As (ng/m <sup>3</sup> )
April-23	54.6	27.4	5.6	16.5	10.2	0.59	BDL	BDL	BDL	BDL	BDL	BDL
May-23	57.8	32.4	6.3	18.8	9.4	0.62	BDL	BDL	BDL	BDL	BDL	BDL
June-23	48.8	29.3	5.4	12.4	9.1	0.54	BDL	BDL	BDL	BDL	BDL	BDL
July-23	47.4	27.4	4.9	12.2	8.8	0.49	BDL	BDL	BDL	BDL	BDL	BDL
August-23	45.6	24.3	5.4	10.8	7.6	0.38	BDL	BDL	BDL	BDL	BDL	BDL
September-23	49.8	26.9	4.2	11.2	12.1	0.39	BDL	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	180	4	400	5	1	20	1	6
Monthly Average	50.7	28.0	5.3	13.7	9.5	0.50	BDL	BDL	BDL	BDL	BDL	BDL
Testing method	Gravimetric	Gravimetric	Improved West and Geake method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling

BDL Values: SO<sub>2</sub>< 4 µg/m<sup>3</sup>, NO<sub>x</sub>< 9 µg/m<sup>3</sup>, O<sub>3</sub><4 µg/m<sup>3</sup>, CO<0.1 mg/m<sup>3</sup>, NH<sub>3</sub><20 µg/m<sup>3</sup>, C<sub>6</sub>H<sub>6</sub><0.001 µg/m<sup>3</sup>, BaP<0.002 ng/m<sup>3</sup>, Ni<0.01 ng/m<sup>3</sup>, Pb<0.001 µg/m<sup>3</sup>, As < 0.001 ng/m<sup>3</sup>.

*P. Patil*  
Reviewed by:



Approved by:



*P. Patil*



- Infrastructure Engineering
- Water Resource Management
- Environmental & Social Study

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- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

Ref: ENVLAB/23-24/TR-09723

Date: 05.10.2023

## SIX MONTHLY AVERAGES OF SURFACE WATER QUALITY ANALYSIS REPORT

(APRIL-2023 TO SEPTEMBER-2023)

1. Name of Industry : M/s Anand Exports , Kalinga Nagar , Jajpur
2. Sampling location : SW1: Brahmani River Upstream
3. Sample Collected By : VCSPL representative in presence of Client's representative

Sl No.	Parameter	Testing Methods	Unit	Standards as per IS-2296:1992 Class - 'C'	Analysis Results						Averages
					APRIL-23	MAY-23	JUNE-23	JULY-23	AUG-23	SEPT-23	
1	Colour	Visual Comparison Method APHA 23 <sup>RD</sup> Ed,2017 : 2120 B, C	Haze n	300	<10	<10	<10	<10	<10	<10	<10
2	pH at 25°C	pH Meter APHA 23 <sup>RD</sup> Ed,2017 4500H <sup>+</sup> B	--	6.0-9.0	7.42	7.58	7.51	7.39	7.45	7.50	7.48
3	Dissolved Oxygen (min)	Modified Winkler Method APHA 23 <sup>RD</sup> Ed,2017 : 4500 O <sup>-</sup> C	mg/l	4.0	6.2	6.0	7.6	7.0	6.4	6.8	6.67
4	Turbidity	Nephelometric Method APHA 23 <sup>RD</sup> Ed,2017: 2130 B	NTU	--	4.5	5.2	4.9	5.5	6.2	5.6	5.32
5	Chloride (max)	Titrimetric Method APHA 23 <sup>RD</sup> Ed,2017: 4500Cl <sup>-</sup> B	mg/l	600	22.5	28.1	30.3	26.1	28.6	24.4	26.67
6	Total Dissolved Solids	Gravimetric Method APHA 23 <sup>RD</sup> Ed,2017: 2540 C	mg/l	1500	130	142	128	132	130	140	134
7	Oil & Grease (max)	Gravimetric Method (Solvent Extraction) APHA 23 <sup>RD</sup> Ed,2017:5520-B	mg/l	--	BDL (<0.6)	BDL (<0.6)	BDL (<0.6)	BDL (<0.6)	BDL (<0.6)	BDL (<0.6)	BDL (<0.6)
8	BOD (3) days at 27°C (max)	Oxygen Depletion Method IS 3025(P-44) : 1993 RA 2003	mg/l	3.0	BDL (<1.8)	BDL (<1.8)	BDL (<1.8)	BDL (<1.8)	BDL (<1.8)	BDL (<1.8)	BDL (<1.8)
9	Chemical Oxygen Demand (COD)	Open Reflux Method APHA 23 <sup>RD</sup> Ed,2017: 5220 C	mg/l	--	BDL(<4)	BDL(<4)	BDL(<4)	BDL(<4)	BDL(<4)	BDL(<4)	BDL(<4)
10	Arsenic as As	By AAS Method APHA 23 <sup>RD</sup> Ed,2017: 3114 B	mg/l	0.2	BDL (<0.004)	BDL (<0.004)	BDL (<0.004)	BDL (<0.004)	BDL (<0.004)	BDL (<0.004)	BDL (<0.004)
11	Lead as Pb	By AAS Method APHA 23 <sup>RD</sup> Ed,2017 3111 B	mg/l	0.1	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
12	Cadmium as Cd (max)	By AAS Method APHA 23 <sup>RD</sup> Ed,2017: 3111 B	mg/l	0.01	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
13	Hexa Chromium as Cr <sup>+6</sup>	Diphenyl Carbazide Method APHA 23 <sup>RD</sup> Ed,2017: 3500Cr B	mg/l	0.05	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
14	Copper as Cu (max)	By AAS Method APHA 23 <sup>RD</sup> Ed,2017: 3111 B	mg/l	1.5	BDL (<0.02)	BDL (<0.02)	BDL (<0.02)	BDL (<0.02)	BDL (<0.02)	BDL (<0.02)	BDL (<0.02)
15	Zinc as Zn(max)	By AAS Method APHA 23 <sup>RD</sup> Ed,2017: 3111 B	mg/l	15	BDL (<0.03)	BDL (<0.03)	BDL (<0.03)	BDL (<0.03)	BDL (<0.03)	BDL (<0.03)	BDL (<0.03)
16	Selenium as Se (max)	By AAS Method APHA 23 <sup>RD</sup> Ed,2017: 3500 Se C	mg/l	0.05	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)
17	Cyanide as CN (max)	Distillation followed by Spectrophotometric Method APHA 23 <sup>RD</sup> Ed,2017: 4500 CN <sup>-</sup> C,D	mg/l	0.05	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
18	Fluoride as F (max)	Distillation followed by Spectrophotometric Method APHA 23 <sup>RD</sup> Ed,2017: 4500F <sup>-</sup> C	mg/l	1.5	0.25	0.21	0.23	0.19	0.22	0.23	0.22
19	Sulphates (SO <sub>4</sub> ) (max)	Turbidimetric Method APHA 23 <sup>RD</sup> Ed,2017: 4500 SO <sub>4</sub> <sup>2-</sup> E	mg/l	400	15.2	14.6	15.0	14.8	14.4	13.9	14.7
20	Phenolic Compounds as C <sub>6</sub> H <sub>5</sub> OH (max)	Chloroform extraction by Colorimetric Method APHA 23 <sup>RD</sup> Ed,2017: 5530 B,D	mg/l	0.005	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)
21	Iron as Fe (max)	By AAS Method APHA 23 <sup>RD</sup> Ed,2017: 3111 B	mg/l	0.5	0.32	0.30	0.41	0.39	0.33	0.36	0.35
22	Nitrate as NO <sub>3</sub> (max)	By UV-Screen Method APHA 23 <sup>RD</sup> Ed,2017: 4500 NO <sub>3</sub> <sup>-</sup> E	mg/l	50	2.3	3.1	2.8	3.0	2.9	3.3	2.9
23	Total Coli form	By Multiple Tube Fermentation Technique APHA 23 <sup>RD</sup> Ed,2017: 9221 B	MPN / 100 ml	5000	1400	1360	1440	1280	1380	1260	1360.0

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- Infrastructure Engineering
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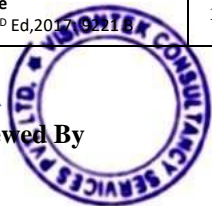
## SIX MONTHLY AVERAGES OF SURFACE WATER QUALITY ANALYSIS REPORT

(APRIL-2023 TO SEPTEMBER-2023)

1. Name of Industry : M/s Anand Exports , Kalinga Nagar , Jajpur
2. Sampling location : SW2: Brahmani River Downstream
3. Sample Collected By : VCSPL representative in presence of Client's representative

Sl. No	Parameter	Testing Methods	Unit	Standards as per IS-2296:1992 Class -'C'	Analysis Result						Averages
					APRIL-23	MAY-23	JUNE-23	JULY-23	AUG-23	SEPT-23	
1	Colour	Visual Comparison Method APHA 23 <sup>RD</sup> Ed,2017 : 2120 B, C	Haze n	300	10	10	15	10	15	10	11.67
2	pH at 250C	pH Meter APHA 23 <sup>RD</sup> Ed,2017 4500H+ B	--	6.0-9.0	7.63	7.81	7.35	7.56	7.60	7.52	7.58
3	Dissolved Oxygen (min)	Modified Winkler Method APHA 23 <sup>RD</sup> Ed,2017 : 4500 O <sup>-</sup> C	mg/l	4.0	5.6	5.2	6.0	5.8	6.0	5.6	5.70
4	Turbidity	Nephelometric Method APHA 23 <sup>RD</sup> Ed,2017: 2130 B	NTU	--	4.2	4.6	4.0	4.8	5.2	4.6	4.57
5	Chloride (max)	Titrimetric Method APHA 23 <sup>RD</sup> Ed,2017: 4500Cl <sup>-</sup> B	mg/l	600	22.8	23.6	24.9	26.2	30.2	24.5	25
6	Total Dissolved Solids	Gravimetric Method APHA 23 <sup>RD</sup> Ed,2017: 2540 C	mg/l	1500	198	204	212	196	220	192	203.7
7	Oil & Grease (max)	Gravimetric Method (Solvent Extraction) APHA 23 <sup>RD</sup> Ed,2017:5520-B	mg/l	--	BDL (<0.6)	BDL (<0.6)	BDL (<0.6)	BDL (<0.6)	BDL (<0.6)	BDL (<0.6)	BDL (<0.6)
8	BOD (3) days at 270C (max)	Oxygen Depletion Method IS 3025(P-44) : 1993 RA 2003	mg/l	3.0	BDL (<1.8)	BDL (<1.8)	BDL (<1.8)	BDL (<1.8)	BDL (<1.8)	BDL (<1.8)	BDL (<1.8)
9	Chemical Oxygen Demand (COD)	Open Reflux Method APHA 23 <sup>RD</sup> Ed,2017: 5220 C	mg/l	--	BDL(<4)	BDL(<4)	BDL(<4)	BDL(<4)	BDL(<4)	BDL(<4)	BDL(<4)
10	Arsenic as As	By AAS Method APHA 23 <sup>RD</sup> Ed,2017: 3114 B	mg/l	0.2	BDL (<0.004)	BDL (<0.004)	BDL (<0.004)	BDL (<0.004)	BDL (<0.004)	BDL (<0.004)	BDL (<0.004)
11	Lead as Pb	By AAS Method APHA 23 <sup>RD</sup> Ed,2017 3111 B	mg/l	0.1	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
12	Cadmium as Cd (max)	By AAS Method APHA 23 <sup>RD</sup> Ed,2017: 3111 B	mg/l	0.01	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
13	Hexa Chromium as Cr+6	Diphenyl Carbazide Method APHA 23 <sup>RD</sup> Ed,2017: 3500Cr B	mg/l	0.05	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
14	Copper as Cu (max)	By AAS Method APHA 23 <sup>RD</sup> Ed,2017: 3111 B	mg/l	1.5	BDL (<0.02)	BDL (<0.02)	BDL (<0.02)	BDL (<0.02)	BDL (<0.02)	BDL (<0.02)	BDL (<0.02)
15	Zinc as Zn(max)	By AAS Method APHA 23 <sup>RD</sup> Ed,2017: 3111 B	mg/l	15	BDL (<0.03)	BDL (<0.03)	BDL (<0.03)	BDL (<0.03)	BDL (<0.03)	BDL (<0.03)	BDL (<0.03)
16	Selenium as Se (max)	By AAS Method APHA 23 <sup>RD</sup> Ed,2017: 3500 Se C	mg/l	0.05	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)
17	Cyanide as CN (max)	Distillation followed by Spectrophotometric Method APHA 23 <sup>RD</sup> Ed,2017: 4500 CN <sup>-</sup> C,D	mg/l	0.05	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
18	Fluoride as F (max)	Distillation followed by Spectrophotometric Method APHA 23 <sup>RD</sup> Ed,2017: 4500F- C	mg/l	1.5	0.52	0.48	0.56	0.52	0.50	0.48	0.51
19	Sulphates (SO4) (max)	Turbidimetric Method APHA 23 <sup>RD</sup> Ed,2017: 4500 SO <sub>4</sub> <sup>2-</sup> E	mg/l	400	42.3	46.8	44.2	52.6	55.9	50.2	48.7
20	Phenolic Compounds as C6H5OH (max)	Chloroform extraction by Colorimetric Method APHA 23 <sup>RD</sup> Ed,2017: 5530 B,D	mg/l	0.005	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)
21	Iron as Fe (max)	By AAS Method APHA 23 <sup>RD</sup> Ed,2017: 3111 B	mg/l	0.5	0.43	0.58	0.51	0.46	0.50	0.54	0.50
22	Nitrate as NO3 (max)	By UV-Screen Method APHA 23 <sup>RD</sup> Ed,2017: 4500 NO <sub>3</sub> <sup>-</sup> E	mg/l	50	18.6	19.2	16.8	20.2	19.4	19.6	19.0
23	Total Coli form	By Multiple Tube Fermentation Technique APHA 23 <sup>RD</sup> Ed,2017: 9221	MPN / 100 ml	5000	1420	1260	1380	1460	1280	1380	1363.3

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- Infrastructure Engineering
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- Mine Planning & Design
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**Laboratory Services**  
 Environment Lab  
 Food Lab  
 Material Lab  
 Soil Lab  
 Mineral Lab  
 &  
 Microbiology Lab

Ref: ENVLAB/23-24/TR-09725

Date: 05.10.2023

## SIX MONTHLY AVERAGES OF SURFACE WATER QUALITY ANALYSIS REPORT

(APRIL-2023 TO SEPTEMBER-2023)

1. Name of Industry : M/s Anand Exports , Kalinga Nagar , Jajpur
2. Sampling location : WW1: Effluent Treatment Plant ( ETP)
3. Sample Collected By : VCSPL representative

Sl. No.	Parameters	Testing Methods	Unit	Standards (In land Surface water)	Analysis Results						
					APRIL-23	MAY-23	JUNE-23	JULY-23	AUG-23	SEPT-23	Avg
1	Colour	Visual Comparison Method APHA 2120 B; 23rd Edition, 2017	Hazen	Colourless	10	10	10	10	5	10	9.0
2	Odour	Threshold Odour Method APHA 2150 B; 23rd Edition, 2017	--	Odourless	pungent smell	pungent smell	pungent smell	pungent smell	pungent smell	pungent smell	pungent smell
3	pH at 250C	pH Meter APHA 4500 H+B; 23rd Edition, 2017	--	5.5-9.0	7.68	7.80	7.88	7.75	7.72	7.66	7.75
4	Total Suspended Solids	Gravimetric Method APHA 2540 D; 23rd Edition, 2017	mg/l	100	32	36	32	38	34	35	34.50
5	Copper as Cu	By AAS Method APHA 3111 B; 23rd Edition, 2017	mg/l	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
6	Fluoride as F	Distillation followed by Spectrophotometric Method APHA 4500 F- C,D; 23rd Edition, 2017	mg/l	2	0.30	0.32	0.30	0.29	0.32	0.28	0.30
7	Total Residual Chlorine	Iodometric Method APHA 23RD Ed,2017 : 4500Cl, B	mg/l	1	ND	ND	ND	ND	ND	ND	ND
8	Iron as Fe	By AAS Method APHA 3111 B; 23rd Edition, 2017	mg/l	3	0.42	0.44	0.49	0.42	0.40	0.38	0.43
9	Manganese as Mn	By AAS Method APHA 3111 B; 23rd Edition, 2017	mg/l	2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
10	Nitrate as NO3	By UV-Screen Method APHA 4500 NO3- B; 23rd Edition, 2017	mg/l	10	7.38	7.32	6.69	6.74	7.26	7.21	7.10
11	Phenolic Compounds as C6H5OH	Distillation Followed by Spectrophotometric Method APHA 5530-B, D; 23rd Edition, 2017	mg/l	1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
12	Selenium as Se	By AAS Method APHA 3500 Se C; 23rd Edition, 2017	mg/l	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
13	Cadmium as Cd	By AAS Method APHA 3111 B; 23rd Edition, 2017	mg/l	2.0	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
14	Cyanide as CN	Distillation Followed by Spectrophotometric Method APHA 4500 -CN-C,E; 23rd Edition, 2017	mg/l	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
15	Lead as Pb	By AAS Method APHA 3111 B; 23rd Edition, 2017	mg/l	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
16	Mercury as Hg	By AAS Method APHA 3112 B; 23rd Edition, 2017	mg/l	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
17	Nickel as Ni	By AAS Method APHA 3111 B; 23rd Edition, 2017	mg/l	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
18	Arsenic as As	By AAS Method APHA 3114 B; 23rd Edition, 2017	mg/l	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
19	Total Chromium as Cr	By AAS Method APHA 3111 B; 23rd Edition, 2017	mg/l	2	0.29	0.31	0.26	0.27	0.30	0.32	0.29
20	Zinc as Zn	By AAS Method APHA 3111 B; 23rd Edition, 2017	mg/l	5	0.032	0.029	0.036	0.041	0.034	0.031	0.034
21	Hexavalent Chromium as Cr+6	By AAS Method APHA 3500 Cr B; 23rd Edition, 2017	mg/l	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
22	Vanadium as V	By AAS Method APHA 3500 V; 23rd Edition, 2017	mg/l	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
23	Temperature	By Thermometer APHA 2550 B; 23rd Edition, 2017	°C	Shall not exceed 50C above the receiving water temperature	28.9	29.5	29.2	28.6	30.1	28.5	29.1
24	Dissolved Oxygen	Modified Winkler Method APHA 4500 O. C; 23rd Edition, 2017	mg/l	--	6.4	6.8	6.2	6.1	7.0	6.2	6.45
25	Biochemical	Oxygen Depletion Method	mg/l	30	3.6	4.0	3.3	4.6	4.8	4.2	4.08



# Visiontek Consultancy Services Pvt. Ltd.

(Committed For Better Environment)

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Accredited by : NABET-A Grade, MOEF & CC/CPCB & SPCB-A Grade

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- Renewable Energy

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- Information Technology
- Public Health Engineering

- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

### Laboratory Services

- Environment Lab
- Food Lab
- Material Lab
- Soil Lab
- Mineral Lab
- &
- Microbiology Lab

	Oxygen Demand as BOD	IS 3025 ( Part 44 ):2003									
26	Chemical Oxygen Demand as COD	Open Reflux Method APHA 5520 B; 23rd Edition, 2017	mg/l	250	16.0	18.0	15.0	16.0	20.0	18.0	17.17
27	Oil & Grease	Gravimetric Method (Solvent Extraction) APHA 5520 B; 23rd Edition, 2017	mg/l	10	4.1	3.9	4.3	3.6	3.7	4.0	3.93
28	Ammonical Nitrogen as N	By TKN Method APHA 4500-NH3 C; 23rd Edition, 2017	mg/l	50	2.4	2.6	2.8	3.2	3.1	2.2	2.72
29	Total Kjeldahl Nitrogen as N	By TKN Method APHA 4500-Norg C; 23rd Edition, 2017	mg/l	100	4.1	4.6	4.4	4.4	4.2	4.3	4.33
30	Sulphide as S	By Methylene Blue Method APHA 4500-S D; 23rd Edition, 2017	mg/l	2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
31	Free Ammonia as NH3	By Calculation	mg/l	10	4.6	5.1	5.6	4.8	4.2	5.0	4.9
32	Particulate Size of Suspended Solids	Gravimetric Method APHA 2540 D; 23rd Edition, 2017	μ	Shall pass 850 micron IS Sieve	<850	<850	<850	<850	<850	<850	<850
33	Bio-assay Test	Evaluating Acute Toxicity IS 6582 (P-2) 2008	%	90% survival of fish after 96 hours in 100% effluent	98% Survival of Fish after 96 Hrs in 100% Effluent	98% Survival of Fish after 96 Hrs in 100% Effluent	98% Survival of Fish after 96 Hrs in 100% Effluent	98% Survival of Fish after 96 Hrs in 100% Effluent	98% Survival of Fish after 96 Hrs in 100% Effluent	98% Survival of Fish after 96 Hrs in 100% Effluent	98% Survival of Fish after 96 Hrs in 100% Effluent

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