आईआरईएल (इंडिया) लिमिटेड
IREL (India) Limited
(Formerly Indian Rare Earths Limited)
(भारत सरकार का उपक्रम)
(A Govt of India Undertaking)
CIN : U15100MH1950GOI008187 Website : www.irel.co.in
Unleashing Values
ISO 9001: 2015, ISO 14001:2015 & ISO 45001 : 2018 Company

3919

TS/ENVR/ OSCOM/ 23rd October 2026

To,
The Additional Principal Chief Conservator of Forests,
Government of India,
Ministry of Environment, Forests & Climate Change (MoEF & CC),
Eastern Regional Office (Eastern Zone),
A/3, Chandrasekharpur, Bhubaneswar-751 023.

Sub.- Half-yearly progress report on Mining & Mineral Separation Units of OSCOM.

Ref: MoEF&CC Environmental Clearance (EC) letter No.J-11015/528/2007-IA.II(M) dated 11th January 2019 for capacity expansion of Mining & Mineral Separation Units.

Dear Sir,

This has reference to the above subject & reference, we are herewith enclosing the compliance report for OSCOM operation for the period April 2026 to September 2026 for your kind information.

As advised, we are submitting the soft-copy to email ID – roez.bsr-mef@nic.in for kind information.

With regards.

Yours truly,
For IREL (India) Limited,

23/10/2026

(C V R Murty)
GM & Head, OSCOM

उड़ीसा सैण्ड्स कांप्लेक्स, माटिखालो (डाक),छत्रपुर (गंजाम), ओड़िशा - 761045 ,भारत
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Regd. Office : Plot No. 1207, Veer Savarkar Marg, Near Siddhivinayak Temple, Prabhadevi, Mumbai - 400 028

IREL (India) Limited

Six Monthly Compliance Report (April 2026 to September 2026)

Format for filling up of Compliance report **Annexure-1**

Name of the project: 1. Mining & Mineral Separation of OSCOM, IREL (India) Limited

Clearance letters No and Date:
i. Environmental Clearance (EC) vide letter No.J-11015/528/2007- IA.II (M) dated 11th January 2019 for capacity expansion of Mining & Mineral Separation Units.

Period of Compliance Report: **April 2026 to September 2026**

Sub: Compliance of various points raised by MoEF letter no. J-11015/528/2007- IA. II(M) dated 11th January 2019 for capacity expansion of Mining & Mineral Separation Units.

Sl No.	Specific Conditions	Compliance
1	This Environmental Clearance is granted subject to outcome of Hon'ble Supreme Court of India, Hon'ble High Court of Odisha, Hon'ble NGT or any other Court of Law, if any, as may be applicable to this project.	Agreed upon
2	This Environmental Clearance will not be operational till such time the Project Proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors.	Agreed upon. All statutory requirements are complied.
3	The Department of Mining & Geology, State Government shall ensure that mining operation shall not commence till the entire compensation levied, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of judgment Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors.	Agreed upon
4	No mining activities will be allowed in forest area, if any, for which the forest Clearance is not available	Forest clearance has been obtained vide file no.8-15/2018FC dated 15th December 2022.
5	The Environmental Clearance is subject to obtaining requisite NBWL Clearance, if any, from the Standing Committee of National Board for Wildlife for mining project.	Agreed upon NOC received vide letter no.11284/7WLFD & WLC-125/2021 dated 09.12.2022 from PCCF& Chief Wildlife Warden, Odisha
6	The Project Proponent shall obtain Consent to Operate from State Pollution Control Board, Odisha and effectively implement all the conditions stipulated therein.	The Consent Order No. 636/24-25 dated 28.03.2024, issued by Odisha State Pollution Control Board (OSPCB) under Water & Air Act renewed and valid up to 31.03.2029.
7	In inter-tidal zone, only manual mining operations shall be carried out deploying persons using baskets and hand spades for collection or ore or minerals as per the approved mining plan.	Agreed upon

8	Necessary AERB Clearance shall be obtained under the Atomic Energy (Radiation Protection) Rules, 2004 for operation of BSM (Beach Sand Minerals) facility.	AERB clearance has been obtained vide licence no. AERB/CN/OPSD/55222/IREL/BSM-O/2024/790 A dated 27th Aug 2024 valid up to 31.08.2029.
9	No mining shall be carried out in "NO GO ZONE / NO OPERATION ZONE" as stipulated in the conditions in the NOC letter No. 3536/WL(C) (SSP) – 149/2012, dated 11th May 2012, granted by Principal Chief Conservator of Forests & Chief Wildlife Warden.	Agreed upon
10	No mining shall be carried out in the CRZ-I area i.e the area within HTL & LTL.	No mining is carried out in the area within HTL & LTL
11	No drilling and blasting shall be involved.	No drilling and blasting are involved.
12	After mining, the mined out area shall be backfilled and levelled to near original topography and plantation should be developed over the same, so that, mining activity do not affect the beach profile.	After mining, the mined out areas are back filled and leveled to near original topography and plantation activity carried out.
13	Conditions as laid down by the Odisha State Coastal Zone Management Authority as stipulated vide letter No. 13716/F&E dated 24th July 2012 while recommending for CRZ clearance shall be strictly complied as given below: a) Green belt with local species has to be taken up if Govt. land is available. b) The present status of sand dunes in the Odisha Space Application Centre (ORSAC) & validated by DFO, Berhampur. c) The sand dunes should not be mined. d) During breeding season of Olive Ridley Turtles, the restrictions imposed by PCCF (Wildlife) are to be followed.	Being complied
14	Conditions of NOC, granted by Principal Chief Conservator of Forests & Chief Wildlife Warden (PCCF& CWLW) vide letter No. 3536/WL/(C)(SSP)-149/2012 dated 11th May 2012, shall be strictly complied as given below: a) No mining shall be carried out in "NO GO ZONE / NO OPERATION ZONE". b) The capacity expansion of Mining and Mineral Separation Unit has to be within the premises of the existing unit of OSCOM premises of IREL (India) Limited at village Matikhalo, Chatrapur, District: Ganjam, Odisha under operation and no extra land or deforestation shall be made. c) The 5 (five) Km zone of the nesting / mass nesting site of endangered Olive Ridley sea turtles from Rushikulya river mouth are shall be as a NO GO AREA or NO DEVELOPMENT ZONE. No mining or sand extraction or habitat alteration or	Being complied a) Agreed upon b) The capacity expansion of Mining and Mineral Separation Unit is within the premises of the existing unit of OSCOM. c) No mining or sand extraction or habitat alteration or activities of similar nature are done in the area of endangered Olive Ridley sea turtles from Rushikulya.

	activities of similar nature shall be done in the area as per the map authenticated by competent authorities of the Odisha Forest Department. d) The Proponent shall take up the mining or sand extraction activities starting from the southern extreme end of the lease hold area till 10 km zone of the Rushikulya river area as per the map authenticated by competent authorities of the Odisha Forest Department. This may give the working period of 8-9 years. Before one year of reaching the 10 km zone segment of the Rushikulya river mouth area, the User Agency shall apply for fresh "No Objection". e) Within the existing unit as well as proposed expansion site, the User Agency shall take all necessary steps to reduce its outdoor illumination during the mass emergence of Olive Ridley sea turtles and their hatchings. f) Release of effluents or by-products of the factory shall be as per the norms of the OSPCB. Toxic chemicals and by-products shall not be released into the Rushikulya River since it is likely to result in reducing the food base of marine turtles. And likely to cause pollution of river/ sea water affecting estuarine and marine wildlife. g) This NOC will remain valid from the date of issue of this letter till 2019 or till reaching the 10 km zone from the Rushikulya River mouth or till the area remains under safe category on wildlife resource conservation considerations, whichever is' earlier in the interest of environmental protection.	d) Agreed upon NOC was applied before one year of reaching 10 km zone segment of Rushikulya River mouth and permission have been accorded from CWLW vide letter ref no. 11284/7WLFD & WLC-125/2021 dated 09.12.2022 from PCCF& Chief Wildlife Warden, Odisha. e) Being complied. f) Complied g) Agreed upon
15	A 15 m barrier of no mining zone all along the side facing the nallah/ water body (Tampara lake) passing thorough the lease area or if passing adjacent the lease shall be demarcated and thick vegetation of native species raised. Status of implementation shall be submitted to the Regional Office of the Ministry on half yearly basis.	Agreed upon Fencing done all along the Tampara Lake & plantation done with native species.
16	Out of 1395.400ha of mineable land, 20,737ha of land covers four small villages of Arjipalli Panchayat namely Bara Arjipalli, Sana Arjipalli Sana Arjipalli (Katuru) and Kandra Arjipalli. As informed by the Proponent, though the displacement is temporary in nature, Rehabilitation & Resettlement (R&R) benefits to the temporarily displaced Project Affected Families (PAFs) shall be provided in consultation with Local Administration as per the provisions of Odisha Resettlement & Rehabilitation Policy, 2006, National Rehabilitation & Resettlement Policy, 2007 and payment of compensation & annual lease rent shall be as per the provisions under MM (D&R) Act,	Agreed upon R & R plan is prepared in consultation with local Administration and approved by District collector, Ganjam. As on date no family displaced due to mining activities.

	1957. Need based assessment for the nearby villages shall be conducted to study economic measures which can help in upliftment of poor section of society. Income generating projects/tools such as development of fodder farm, fruit bearing orchards, vocational training etc. can form a part of such programme. Company shall provide separate budget for community development activities and income generating programmes. This will be in addition to vocational training for individuals imparted to take up self-employment and jobs.	
17	Implementation of conservation plan for schedule I species as approved by the Chief Wild life Warden, Bhubaneswar.	Being complied
18	Identification of sand dunes shall be done prior to undertaking mining activities and their conservation shall be as per MOEF&CC guidelines from time to time. No flattering of sand dunes shall be carried out. Dressing or altering the sand dunes, hills, natural features including landscape changes shall not be carried out for beautification/ recreational purposes. Precautions shall be taken to prevent intrusion of sea water into hinterland to avoid problem of submission/flooding.	Being complied
19	Tailing and rejects shall be filled back systematically after separating the heavy/rare minerals. Sand tailing shall be put back at the mined area on completion of extraction of rare minerals. Afforestation shall be taken up with suitable species on mined out areas to prevent erosion of shoreline. Under no circumstances, the tailings will be dumped in agricultural lands, wet lands, paddy fields, canals and the backfilling will be carried out only in the inland mined out areas.	Tailing and rejects are back filled systematically after separating the heavy/rare minerals. Tailing put back at the mined out area on completion of extraction of Atomic Minerals from inland areas. Afforestation are being carried out with suitable species on mined out areas.
20	The mining activities shall be regulated in such a way that there will be minimum disturbance to the fauna during spawning and brooding period i.e from November to March.	Being complied
21	Mining shall be carried out in phases only. Simultaneously opening of entire beach front is not permissible. There shall be uninterrupted access to the seafront. Minimum 20 m width of approach roads shall be provided where necessary.	Being complied
22	Mining shall be carried out by permitted methods without the use of any forms of blasting. Use of explosives for blasting is prohibited. The mining should be stated near sea side and mining should be progressed parallel to sea coast so that inland water table is not disturbed.	Being complied. No blasting operations are involved and no explosives are used.
23	Radiation survey shall be carried out as stipulated by the Atomic Minerals Directorate for Exploration and Research, Department of Atomic Energy, Government of India to ascertain the effects of radioactivity minerals.	As stipulated by AMDER, radiation surveys are carried out by the Health Physics Unit of BARC.

24	Regular monitoring of water quality upstream and downstream of adjoining water bodies shall be carried out and record of monitoring data should be maintained and submitted to Ministry of Environment, Forests & Climate Change, its Regional Office, Odisha, Central Groundwater Authority, Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board.	Regular monitoring of water quality upstream and downstream of adjoining water bodies are carried out by an NABL accredited agency and record of monitoring data are maintained and submitted to MoEF&CC.
25	Mineral handling plant shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.	Mineral handling plant is provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points are also have efficient dust control arrangements.
26	A final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment, Forest and Climate Change 5 years in advance of final mine closure for approval.	Agreed upon and are being followed.

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Standard conditions:

Sl No.	Standard Conditions	Compliance
1	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment, Forest and Climate Change.	Agreed upon
2	No change in the calendar plan including excavation, quantum of beach sand mineral i.e. Illemnite, Rutile, Zircon, Monazite, Sillimanite and Garnet and waste should be made.	Agreed upon
3	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of water (surface water and ground water) for the project.	Agreed upon
4	Mining shall be carried out as per the provisions outlined in mining plan approved by AMD as well as by abiding to the guidelines of Directorate General Mines Safety (DGMS).	Being complied
5	The lands which are not owned by Proponent, mining will be carried out only after obtaining the consents from all the concerned land owners as per the provisions of the Atomic Mineral Concession Rules, 1960 and MMDR Act, 1957.	Being complied
6	Digital processing of the entire lease area using remote sensing technique shall be carried out regularly once in three years for monitoring land use pattern and report submitted to Ministry of Environment, Forest and Climate Change its Regional Office.	Agreed upon.
7	The critical parameters as per the Notifications 2009 such as PM_{10},$PM_{2.5}$,NO_X, and SOx etc. in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [TDS, DO, PH and Total Suspended Solids (TSS)]. The monitored data shall be uploaded on the web site of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The circular No. J-20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regard for its compliance.	Ambient Air Quality Monitoring (AQM) stations and quality of discharged water monitoring is being carried out by M/s ITS Testing Laboratory Private Limited., Noida (U.P), a NABL accredited & MoEF&CC authorized agency, at five stations Mining area (south & north), IREL Colony, Bada Arjipalli, Kanamana and in plant area on regular basis are enclosed in Annexure-2. From the monitoring data, it is seen that the all the data are within the permissible limits. Monitored data is uploaded in company website.
8	Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of PM_{10}, $PM_{2.5}$ such as haul road, loading and unloading points and transfer points. Fugitive dust emissions from all the sources shall be controlled regularly. It shall be ensured that the Ambient Air Quality parameters	Regular water sprinkling are carried out in critical areas prone to air pollution and having high levels of PM_{10}, $PM_{2.5}$ such as haul road, loading and unloading points and transfer points.

	Quality to be carried out based on the Notifications 2009, as amended from time to time by the Central Pollution Control Board.	
9	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and constructing new piezometers during the mining operation. The project proponent shall ensure that no natural water course and/or water resources shall be obstructed due to any mining operations. The monitoring shall be carried out four times in a year pre-monsoon (April-May), Monsoon (August), post monsoon (November) and winter (January) and the data thus collected may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Directory, Central Ground Water Board.	Ground water monitoring is regularly carried out inside OSCOM on monthly basis and around OSCOM (from local villages) on quarterly basis in a year and half yearly reports are sent to the Regional Office, Ministry of Environment and Forests, Bhubaneswar regularly. From the monitoring data, it is seen that the all the data are within the permissible limits.
10	Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintain. The natural water bodies and or streams which are flowing in and around the village, should not be disturbed. The water Table should be nurtured so as not to go down below the pre-mining period. In case of any water scarcity in the area, the project Proponent has to provide water to the villagers for their use. A provision for regular monitoring of water table in open dug wall located in village should be incorporated to ascertain the impact of mining over ground water table.	Being complied Monitoring of water table in open dug wall located in villages is under taken by IREL through third party agency i.e M/s ITS Testing Laboratory Private Limited., Noida (U.P), a NABL accredited and MoEF&CC authorized agency. Results of study are kept in records.
11	Regular monitoring of water quality upstream and downstream of water bodies shall be carried out and record of monitoring data should be maintained and submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Directory, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board.	Water quality monitoring is regularly carried out inside OSCOM on monthly basis and around OSCOM (from local villages) on quarterly basis in a year and half yearly reports are sent to the Regional Office, Ministry of Environment and Forests, Bhubaneswar regularly. From the monitoring data, it is seen that the all the data are within the permissible limits.
12	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/masks away from the villagers and keeping the noise levels well within the prescribed limits for day light/night hours.	Being complied.

13	Main haulage road in the mine should be provided with permanent water sprinkles and other roads should be regularly wetted with water tankers fitted with sprinkles. The material transfer points should invariably be provided with Bag filters and or dry fogging system. In case of Belt-conveyors facilities the system should be fully covered to avoid air bone dust; Use of effective sprinkler system to suppress fugitive dust on haul roads and other transport roads shall be ensured.	Water sprinkler are engaged for regular water sprinkling on Main haulage road in the mining area.
14	Sufficient number of Gullies to be provided for better management of water. Regular Monitoring of pH shall be included in the monitoring plan and report shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office on six monthly basis.	Regular Monitoring of pH are being carried out and reports are submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office on six monthly basis.
15	There shall be planning, developing and implementing facility of rainwater harvesting measures on long term basis and implementation of conservation measures to augment ground resources in the area in consultation with Central Ground Water Board.	Rainwater harvesting measures are implemented to recharge the ground resources.
16	The reclamation at waste dump sites shall be ecologically sustainable. Scientific reclamation shall be followed. The local species may be encouraged and species are so chosen that slope, bottom of the dumps and top of the dumps are able to sustain these species. The aspect of the dump and is also a factor which regulates some climatic parameters and allows only species adopted species to that micro climate.	Being complied.
17	The top soil, if any, shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation. The over burden (OB) generated during the mining operations shall be stacked at earmarked dump site(s) only and it should not be kept active for a long period of time. The OB dumps should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles shall be undertaken for stabilization of the dump. The entire excavated area shall be backfilled and afforested. Monitoring and management of rehabilitated area should continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office on six monthly basis.	Complied. There are no overburdens during the operation.
18	Plantation shall be raised in a 7.5m wide green belt in the safety zone around the mining lease, backfilled and reclaimed area, around water body, along the roads etc. by planting the native species in consultation with the local DFO/Agriculture Department and as per CPCB Guidelines. The density of the trees should be around 2500 plants per ha. Greenbelt shall be developed all along the mine lease area in a phased manner and shall be completed within first five years.	Plantation activities are undertaken over backfilled reclaimed areas. Safety zone plantation around the mining lease hold areas are being carried out in phased manner.

19	Project Proponent shall follow the mitigation measures provided in Office Memorandum No. Z-11013/57/2014-IA.II (M) , dated 29th October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area", if any, applicable to the project.	Complied
20	The project Proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna, if any, spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. A copy of action plan shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office.	Being complied.
21	As per the Company Act, the CSR cost should be 2 % of average net profit of last three years. Hence CSR expenses should be as per the Company Act/Rule for the Socio Economic Development of the neighborhood Habitants which could be planned and executed by the Project Proponent more systematically based on the 'Need based door to door survey' by established Social Institutes/Workers. The report shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office on six monthly basis.	Being complied. The CSR Expenditure reported during the financial year: FY 2024-25 : Rs 8.37 Cr 2025-26 : Rs 9.45 Cr
22	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.	Agreed upon.
23	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs/muffs.	Noise levels are monitored and reports submitted to MoEF &CC. Workers engaged in operations of HEMM, etc. are provided with ear plugs/muffs.
24	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.	Being complied. The waste water generated from Mineral Separation Plant is taken to storage Pond No.1. After settling of slime in the pond, the water is recycled for reuse in the same plant. The monitoring results of liquid effluent to Pond No.1 are regularly evaluated. From the monitoring data, it is seen that all the parameters are within the permissible limit.

25	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.	Being complied. Personnel working in dusty areas are providing PPE's and are wearing protective respiratory devices and they are also regularly provided with adequate training and information on safety and health aspects.
26	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 the Head of the Organization.	Complied. Environment Management Cell is constituted and functioning. In addition, Environment Management Review meetings are being conducted on quarterly basis to review of the progress of requirements of Environment Management system as per ISO 14001: 2015.
27	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 Ministry and its Regional Office.	Being complied The year wise environmental protection measures expenditure reported during the financial year: FY 2024-25 : Rs 0.62 Cr 2025-26 : Rs 0.54 Cr
28	The project authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Being complied
29	The project Proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment, Forest and Climate Change, its Regional Office, Central Pollution Control Board and State Pollution Control Board.	Six monthly reports on the status of the implementation of the stipulated environmental safeguards are being submitted to the MoEF & CC, Regional office, BBSR and SPCB.
30	The Regional Office of this Ministry 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.	Agreed upon.
31	A copy of clearance letter will be marked to concerned Panchayat/ local NGO, if any, from whom suggestion/ representation has been received while processing the proposal.	Complied
32	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.	Yes complied
33	The Project authorities should advertise at least in two local newspaper widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of	Yes complied. i.e Advertised in English new paper: Times of India on

	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, Forest and Climate Change at www.environmentclearance.nic.in/ parivesh.nic.in and a copy of the same should be forwarded to the Regional Office.	18.01.2019 & Odia daily news paper on 17.01.2019
34	The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environmental protection.	Agreed upon
35	Concealing factual data or submission of face/ fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act,1986.	Agreed upon
36	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection)Act, 1986 and the Public Liability Insurance act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/ High Court Of Odisha and any other Court of Law relating to the subject matter.	Agreed upon
37	Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Agreed upon

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आईआरईएल (इंडिया) लिमिटेड
IREL (India) Limited
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3919

TS/ENVR/ EC/REEP/

23rd October 2026

To,
The Additional Principal Chief Conservator of Forests,
Government of India,
Ministry of Environment & Forests(MoEF),
Eastern Regional Office (Eastern Zone),
A/3, Chandrasekharpur, Bhubaneswar-751 023.

Dear Sir,

Sub. - Half-yearly progress report on Rare Earth Extraction Plant (REEP)(Earlier named MoPP)

Ref.- i. MoEF letter no.11015/348/2009-IA.II (M) dated 9th February 2011.

With reference to above, we are herewith enclosing the compliance report for REEP (Earlier named MoPP) operation for the period April 2026 to September 2026 for your information please.

As advised, we are submitted the soft copy in PDF to email ID – roez.bsr-mef@nic.in for kind information.

With regards.

Yours truly,
For IREL (India) Limited

23/10/2026

(C.V.R. Murty)
GM & Head, OSCOM

उड़ीसा सैण्ड्स कांप्लेक्स, माटिखालो (डाक),छत्रपुर (गंजाम), ओड़िशा - 761045 ,भारत
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Regd. Office : Plot No. 1207, Veer Savarkar Marg, Near Siddhivinayak Temple, Prabhadevi, Mumbai - 400 028

Format for filling up of Compliance report Annexure-1

Name of the project: 1. Rare Earth Extraction Plant (earlier named MoPP) of OSCOM, IREL (India) Limited

Clearance letters No and Date: i. MoEF letter no. 11015/348/2009-IA.II (M) dated 9th February 2011 for REEP (Earlier named as MoPP)

Period of Compliance Report: **April 2026 to September 2026**

6A. Specific Conditions	Compliances
(i) The project proponent shall obtain prior Consent to Establish and Consent to Operate for the project from the State Pollution Control Board, Orissa and shall effectively implement all the conditions stipulated therein.	Consent to Operate Order No.2794 has obtained vide OSPCB letter No.4815 dated 31 March 2026 for REEP operation valid from 01-04-2026 to 31st March 2030.
(ii) The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any operations of the project.	No natural water course/ water resource has been obstructed during trial operation of REEP.
(iii) The existing slurry pipeline shall be used and no new pipeline shall be laid through the CRZ area. The discharge shall also be made through the existing pipeline. No new activity relating to the project shall be undertaken in CRZ area without obtaining requisite prior clearance under the CRZ Notification, 2011.	No new pipeline will be laid through the CRZ area and no new activity relating to the project will be undertaken in CRZ area
(iv) No ash/waste shall be discharged or dumped in the CRZ area.	Ash/waste is not dumped / discharged in CRZ area. Fly Ash are being dumped in low lying mined out area.
(v) The project proponent shall develop effective emergency response procedure to ensure appropriate risk management measures in the public domain, If any, due to the project.	Emergency Preparedness & Response and Distasted Management Plan to ensure appropriate risk management measures in the public domain is prepared and submitted to MoEF&CC, Central Regional Office, and Bhubaneswar vide our letter No.TS/ENVR/05G/5601A dated 6th October 2017.
(vi) The AERB clearance for the site as applicable shall be obtained before starting any construction work and a copy of the same shall be provided to the Ministry of Environment and Forests and its Regional office located at Bhubaneswar.	We have obtained AERB clearance for setting up of REEP (copy already submitted vide our letter No.TS/ENVR/05/ OSCOM/10801A dated 26th December 2011).
(vii) Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on roads. 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 sprinkling is being carried out for existing operations for suppression of dust. Suitable ventilation arrangements have been provided at critical air pollution prone areas. Air Quality Monitoring (AQM) stations: AQM monitoring is being carried out by M/s ITS Testing Laboratory Private Limited., Noida (U.P), a NABL accredited & MoEF&CC authorized agency, at five stations Mining area (south & north), IREL Colony, Bada Arjipalli & Kanamana and in plant area on regular basis. The data for the period **April 2026 to September 2026** is enclosed in Annexure-2. From the monitoring data it is seen that the PM10 levels

	and PM2.5 levels are within the permissible limits of 100 µg/m3 and 60 µg/m3 respectively.
(viii)Regular monitoring of conventional gaseous pollutants, radioactive pollutants in the air as well in the discharged water shall be monitored regularly as per AERB standards.	Monitoring of gaseous pollutants, radioactive pollutants in the air and treated effluent are regularly monitored and AERB standards are maintained during Plant operation. The monitoring report on Stack gas emission, radioactivity levels and for treated effluent for the period **April 2026 to September 2026** are enclosed in Annexure-2 respectively and are well within the permissible limits.
(ix) A Disaster Management Plan and Emergency Preparedness Plan shall be prepared and put in place as per the norms of AERB. Regular mock drills shall be undertaken and based on the same, any modification required, if any, shall also be incorporated.	Emergency Preparedness & Response and Distaster Management Plan is prepared in line with AERB norms submitted to MoEF&CC, Central Regional Office, Bhubaneswar vide our letter No.TS/ENVR/05G/5601A dated 6th October 2017. Regular mock drills are conducted.
(x) The radioactive waste, if any shall be managed as per the norms prescribed by the AERB. ,	The radioactive waste management is being carried out as per the norms prescribed by AERB.
(xi) Plantation including a green belt of at least 7.5m width all around the plant shall be developed by planting the native species in consultation with the local DFO/ Agriculture Department.	Plantation activity were regularly being carried out in mined out areas & inside plant & housing colony areas of OSCOM & REEP. The details of plantation activities, carried out at mining area, plant & Housing Colony area along with photographs of the plantation in plant area (including plantation in 7.5 m width boundary) & mining area were submitted to MoEF&CC, Central Regional Office, Bhubaneswar vide our letter No.TS/ENVR/05G/5601A dated 6th October 2017.
(xii) The project authority shall implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	Implementation of Rain Water harvesting & construction of artificial recharge structures in IREL Plant site as well as in Housing Colony have already been taken up in consultation with the Regional Director, Central Ground Water Board to augment the ground water resources in the area.
(xiii)Regular monitoring of ground water level and quality shall be carried out by establishing a network of existing wells and constructing new piezometers in and around the project area especially around the trenches to be used for storage of waste material generated in the processing plant. 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	Ground water monitoring is regularly carried out inside OSCOM on monthly basis and around OSCOM (from local villages) on quarterly basis in a year and half yearly reports are sent to the Regional Office, Ministry of Environment and Forests, Bhubaneswar regularly. The monitoring report for the period **April 2026 to September 2026** is enclosed as in Annexure-2. Commercial production of REEP is initiated from April 2015 onwards. Periodic monitoring of ground water is under progress and the monitoring data is being sent to the Ministry of Environment and Forests and its Regional Office Bhubaneswar. Corrective measures shall be immediately taken if it is observed that the groundwater table and quality is getting affected due to the REEP operation.

Board. If at any stage, it is observed that the groundwater table and quality is getting affected due to the project activity, necessary corrective measures shall be carried out.	
(xiv) The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of water(surface water and groundwater) required for the project.	The existing two numbers of bore wells of Thorium Plant are used for REEP for which NOC has been obtained in 2016.
(xv) Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.	Implementation of Rain Water harvesting & construction of artificial recharge structures in IREL Plant site as well as in Housing Colony have already been taken up in consultation with the Regional Director, Central Ground Water Board to augment the ground water resources in the area.
(xvi) Monitoring of background radiation levels in water, soil and ambient air should be carried out periodically in the study area (core and buffer zone) of the project through an expert agency like Health Physics Division of Bhaba Atomic Research Centre (BARC).	Monitoring of background radiation levels in water, soil and ambient air were carried out in the study area (core and buffer zone) of REEP by Health Physics Unit (HPU) of Bhaba Atomic Research Centre (BARC), stationed at OSCOM and results were incorporated in EIA & EMP Report of REEP (submitted to MoEF, New Delhi vide our letter TS/ENVR/43A/6257A dated 12th July 2010 and to MoEF, Regional Office, Bhubaneswar vide our letter No.TS/ENVR/43A/2555A dated 15th March 2010. Periodic monitoring is being carried out regularly by HPU during REEP operation and reports are regularly submitted to MoEF & to the Regional Office, Bhubaneswar. The monitoring report on radiation levels during the period **April 2026 to September 2026** is enclosed in Annexure-2.
(xvii) Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and the wastewater generated during the processing process. Discharges from the treatment plant and settling pits should be constantly monitored for concentration of radio nuclides.	Installation of STP having capacity 0.6MLD /600KLD has been completed and functioning. All the effluents are being monitored as per OSCPB & AERB norms.
(xviii) Sludge from the treatment plant and settling pit should be transported in safe containment.	Sludge from the effluent treatment plant and settling pit are transported to RCC Trenches as per AERB recommendation.
(xix) The project authorities should undertake sample survey to generate data on pre-project community health status within a radius of 1 km from the proposed project.	As OSCOM is an existing unit, health survey of nearby village population is being regularly carried out and record is maintained. Regular employees & Contractual Workers are subjected to initial & periodic Medical Examinations as per Statutory guidelines and records maintained at Medical Department; total cases attended during the year 2025 are 8370. Villagers of adjoining areas are provided medical treatment facilities on regular basis through Family Health Clinic & Occupational Health Centre & record maintained, total cases attended during the year 2025 are 5046. The annual disease profile of the local village & employee's area is sent

	to the MoEF, New Delhi as well as to the Regional Office, MoEF, and Bhubaneswar along with half yearly compliance report.
(xx) Occupational health surveillance program of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed. Health records of the workers shall be maintained.	Occupational health surveillance program of the workers are being carried out periodically to observe any contractions due to exposure to dust/radiation and corrective measures are being taken. The same practice is being followed for the employees who are working in REEP and record is maintained. The annual disease profile of the local village & employee's area is enclosed herewith as Annexure-2,
(xxi) Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.	Pre-placement medical examination and periodical medical examination of the workers are regularly carried out as per Mining Rules & AERB Rules for the employees following schedule of health examination and record is maintained.
(xxii) The plants growing in the area, soil invertebrate animals and local agricultural produce should be analysed to check the buildup of radioactivity levels, if any.	The report on radioactivity levels in plants growing in the area, soil samples for local agricultural produce, carried out by Health Physic Unit, Bhava Atomic Research Center, stationed at OSCOM was submitted to MoEF & CC, Central Regional Office, Bhubaneswar vide our letter No.TS/ ENVR/05G/5601A dated 6th October 2017.
(xxiii)The project proponent shall have an emergency response plan to ensure that all potentially affected people understand the possible causes and consequences of radiation and other project related activities.	Emergency Preparedness Plan is already available. The possible causes and consequences of radiation and other related activities have been identified and necessary action for remedy of the same has been mentioned.
(xxiv)The project proponent shall take all precautionary measures during mining operation for conservation and protection of flora and endangered fauna namely olive ridley turtle etc. spotted in the study area. Action plan for conservation of flora and fauna prepared shall be implemented in consultation with the State Forest and Wildlife Department. All the safeguard measures brought /out in the Wildlife Conservation Plan so approved specific to this project site shall be effectively implemented. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of action plan shall be submitted to the Ministry of Environment and Forests and its Regional Office, Bhubaneswar.	All the precautionary measures during mining operation for conservation and protection of flora and fauna are being carried out. The mining is open cast type. After separation of heavy minerals, the mined out area is simultaneously back filled by the reject sand. The mined out area is leveled to near original topography and left for one year for sand stabilization. After one year, the area is planted with suitable local species e.g. Casurina, Cashew nut. Plantation is taken by giving the area by way of offering a contract to private contractor/ Co-operative Society of the local villages. The growth of herbaceous trees/creepers further stabilizes the sand and the ecological conditions are restored back. The biological report on flora and, fauna, duly authenticated by PCCF & WLW, separately for core and buffer zone considering 10 km from mine lease boundary was furnished in Annexure- 23 in EIA & EMP Report. As per approved plan, Rs. 46.0 lakhs has already been paid as per advice of Divisional Forest Officer (D.F.O.), Berhampur. Odisha Forest Department is taking

	necessary measures for conservation of sea turtles as per the approved plan. We are also providing necessary essential items/supports, as advised by D.F.O., Berhampur, during the breeding activity of Olive Reedley sea turtles in every year.
(xxv) 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, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Most of the labourers engaged for construction work were belonging to nearby villages. However, for outside labourers, the Contractor as well as IREL provided necessary facilities like fuel for cooking, toilets, safe drinking water, change room etc. Medical facilities and safety appliances were provided to all the contractual labourers. The temporary housing sheds were removed after the completion of the project.
6B. General Conditions	
(i) No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.	Expansion or modification of REEP will be carried out only after obtaining prior approval of the Ministry of Environment and Forests.
(ii) 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. PM_{10}), NO_x and SO_2 monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	Ambient air quality monitoring is already carried out in five permanent stations, thrice in a month, around IREL and one spot inside plant premises, monthly once basis which is in consultation with Odisha State Pollution Control Board. The monitoring results for the period **April 2026 to September 2026** are enclosed in Annexure-2 for ready reference please.
(iii) Data on ambient air quality RSPM (Particulate matter with size less than 10 micron i.e., PM_{10}), NOx and SO_2 should be regularly submitted to the Ministry of Environment and Forests including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.	Ambient air quality with respect to parameters RSPM (PM_{10}), NOx and SO_2 are regularly monitored and submitted to Odisha State Pollution Control Board once in a month and to the Regional office, Ministry of Environment and Forests, Bhubaneswar vide half yearly compliance report.
(iv) Measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. shall be provided with ear plugs / muffs.	Noise levels are regularly monitored and submitted to the Regional office, Ministry of Environment and Forests, Bhubaneswar. Personnel engaged in noisy areas are provided with ear plugs / muffs. The same practice will also be followed for REEP operation. The monitoring data on noise level is enclosed in Annexure-2.

(v) 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 be utilized for plantation purpose.	After re-engineering for effective utilization of water, 15-20 m^3/day of treated effluent is generated from REEP operation, after conforming to the prescribed standards, the same is used for plantation & reuse in MSP.
(vi)Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	Personnel working in dusty areas are provided appropriate protective respiratory devices such as nose masks, goggles. Adequate training and information on safety and health aspects are regularly provided to all the employees of OSCOM & REEP.
(vii)Separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.	Environment Management Cell is constituted and functioning. In addition, quarterly Environment Management Review meetings are being conducted to carry out to review the progress of requirements of Environment Management system as per ISO 14001:2015.
(viii)The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Date of final approval of the Project: 25th August 2011 Date of start of land development work: 15th May 2011.
(ix) 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.	Fund has already been allocated to meet the expenditures for protection and maintaining the environmental safeguards in respect of existing operations and the year wise expenditure is regularly informed to the Regional Office, MoEF, Bhubaneswar.
(x) 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.	Co-operation is being fully extended to the officials of Regional Office, MoEF, Bhubaneswar and all the information/data are provided as per requirement.

(xi) 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, the State Pollution Control Board. The proponent shall upload the status of 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 Office of Central Pollution Control Board and the State Pollution Control Board.	Six monthly compliance report along with monitoring data as per the conditions stipulated in the environmental clearance letter will be regularly provided to the MoEF, its Regional Office Bhubaneswar, Odisha State Pollution Control Board. Environmental Statement report is being displayed in IREL website and the same will be updated periodically. The compliance reports and monitoring data will be displayed in IREL website and the same will be updated periodically.
(xii) A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad/ 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.	The copy of the clearance letter was sent to the Panchayat of villages e.g. Kalipalli, Arjipalli, Kanamana, Zilla Parishad, District Industries Office etc. Copy of the above letter was sent to the Regional Office, MoEF, and Bhubaneswar for information. The clearance letter is put on the website of IREL.
(xiii) 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.	The Regional Officer of Odisha State Pollution Control Board informed during discussion that necessary action was taken in this regard.
(xiv) 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 Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e-mail.	The environmental statement for each financial year ending 31st March for existing operations of REEP is prepared and submitted in Form-V to the Odisha State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended thereon. It is also uploaded in IREL website along with the status of compliance of environmental clearance conditions.

xv) The project authorities should 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:llenvfor.nic.in and a copy of the same should be forwarded to the Regional Office	The matter regarding issue of the environmental clearance letter for setting up of a Monazite Processing Plant within the existing OSCOM premises was published in two local daily news papers i.e. in 'Indian Express' & in 'Samaj' in English & Oriya languages respectively on 16th February 2011. The copies of the same advertisements were sent to the Regional Office, MoEF, Bhubaneswar vide our letter No.TS/ENVR/43A/2291A dated 18th March 2011.
7. The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.	Agreed upon.
8. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.	Agreed upon.
9. The above conditions will be enforced inter-alia, under the provision the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rule made there under and also any other orders passed by the Hon'ble Supreme Court of India/High Court of Orissa and any other Court of Law relating to subject matter.	Agreed upon.

आईआरईएल (इंडिया) लिमिटेड
IREL (India) Limited
(Formerly Indian Rare Earths Limited)
(भारत सरकार का उपक्रम)
(A Govt of India Undertaking)
CIN : U15100MH1950GOI008187 Website : www.irel.co.in
Unleashing Values
ISO 9001: 2015, ISO 14001:2015 & ISO 45001 : 2018 Company

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TS/ENVR/SWDP/

23rd October 2026

To,
The Additional Principal Chief Conservator of Forests,
Government of India,
Ministry of Environment, Forests & Climate Change (MoEF&CC),
Eastern Regional Office (Eastern Zone),
A/3, Chandrasekharpur, Bhubaneswar-751 023.

Dear Sir,

Sub. - Half-yearly progress report on Sea Water Desalination Plant (SWDP).

Ref.- i. CRZ clearance vide MoEF&CC letter No. 11-41/2015-IA-III dated 16-08-2018.
ii. MoEF&CC Reginal Office letter No.101-1066/EPE/753 dated 24.04.2019.

This has reference to the above subject & references; we are herewith enclosing the compliance report for Sea Water Desalination Plant (SWDP) operation for the period April 2026 to September 2026 for kind information.

As advised, we are submitting the soft copy in PDF to the email ID – roez.bsr-mef@nic.in for kind information.

With regards.

Yours truly,
For IREL (India) Limited

23/10/2026

(C V R Murty)
GM & Head, OSCOM

उड़ीसा सैण्ड्स कांप्लेक्स, माटिखालो (डाक),छत्रपुर (गंजाम), ओड़िशा - 761045 ,भारत
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Regd. Office : Plot No. 1207, Veer Savarkar Marg, Near Siddhivinayak Temple, Prabhadevi, Mumbai - 400 028

Format for filling up of Compliance report **Annexure-1**

Name of the project: Sea Water Desalination Plant (SWDP).

Clearance letters No and Date: i. CRZ clearance vide MoEF&CC letter No. 11-41/2015-IA-III dtd 16-08-2018.
ii. MoEF &CC Regional Office letter No.101-1066/EPE/753 dated 24.04.2019.

Period of Compliance Report: **April 2026 to September 2026**

Sr. No.	Condition	Compliance
PART-A	SPECIFIC CONDITIONS	
i.	The project proponent shall ensure that the guidelines for building and construction projects issued vide this Ministry's OM No.19-2/2013-IA.III dated 9th June, 2015.1 are followed to ensure sustainable environmental management.	All guidelines for building and Construction projects are followed to ensure sustainable environmental management.
ii.	The project activity shall be carried out strictly be as per the provisions of CRZ Notification, 2011, and shall not affect the coastal ecology of the area including flora and fauna.	Yes, Noted please.
iii.	The Project Proponent shall ensure that there is no destruction of mangroves during the construction as well as the operation phase of the project.	There are no mangroves in the proposed project site.
iv.	No radiation related discharge shall be released in the coastal area including the Sea.	Desalination plant has no radiation linkage.
v.	There shall be no dressing or alteration of the sand dunes and natural features, including landscape changes for beautification, recreation and other such purpose.	Activities like dressing or alteration of the sand dunes etc are not involved.
vi.	All conditions/recommendations stipulated by the Odisha Coastal Zone Management .Authority (OCZMA) vide their letter No 64/0CZMA dated 25.08.2015, shall strictly be complied with, as may be applicable.	Yes, agreed upon.
vii.	The project proponent shall obtain all necessary clearances/ permission from the concerned authorities as applicable.	Yes, agreed upon.
viii.	Solid waste shall be managed as per Solid Wastes Management Rules, 2016.	Yes, agreed upon.
ix.	Consent to Establish' as may be applicable, shall be obtained from State Pollution Control Board under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.	Complied. CTE already obtained. CTO no: 4033 dated 30.03.2025 is valid upto 31.03.2028
x.	All waste (liquid and solid) arising from the proposed development will be disposed of as per the norms prescribed by State Pollution Control Board. There shall not be any disposal of untreated effluent	Yes, agreed upon.

Sr. No.	Condition	Compliance
	into the sea/coastal water bodies.	
xi.	No Permanent labour camp, machinery and material storage shall be allowed in CRZ area.	Yes, agreed upon.
xii.	There shall no ground water drawl within CRZ without prior approval of the Central Ground Water Authority.	Yes, agreed upon.
xiii.	Disposal of muck during construction phase should not create any adverse effect on the neighbouring communities and be disposed taking the necessary precautions for general safety and health aspects of people, only in approved sites with the approval of competent authority	There are no neighbouring communities nearby & muck during construction phase were disposed taking necessary precautions for general safety & health aspects of people.
PART-B	GENERAL CONDITION	
i.	A copy of the clearance letter shall also be displayed on the website of the concerned State Pollution Control Board. The Clearance letter shall also be displayed at the Regional Office, District Industries centre and Collector's Office/ Tehsildar's office for 30 days.	Copy of Clearance letter provided to OSPCB. CTO no: 4033 dated 30.03.2025 is valid upto 31.03.2028
ii.	The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its concerned Regional Office.	Yes, agreed upon. The Environmental protection measures were taken for all functions of OSCOM and shall be taken once the desalination plant is in operation.
iii.	Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.	Yes, agreed upon.
iv.	The above stipulations would be enforced among others under the provisions of the Water (Prevention and Control of Pollution) Act'. 1974, the Air (Prevention and control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public liability (Insurance) Act, 1991, the EIA Notification, 2006 and the CRZ Notification, 2011.	Yes, agreed upon.
v.	Full co-operation shall be extended to the officials from the Regional Office of MoEF&CC, during monitoring of implementation of environmental safeguards stipulated. It shall be ensured that documents/data sought pertinent is made available to the monitoring team. A complete set of all the documents submitted to MoEF&CC shall be forwarded to the concerned Regional Office of MoEF&CC.	Yes & Co-operation will be fully extended to the officials of Regional Office, MoEF, Bhubaneswar and all the information/data shall be provided as per requirement.

Sr. No.	Condition	Compliance
vi.	In the case of any change(s) in the scope of the project, the project would require a fresh appraisal by this Ministry.	No change in scope of project.
vii.	The Ministry reserves the right to add additional safeguard measures subsequently, if found necessary and to take action including revoking of the environment clearance under the provisions of the Environmental (Protection) Act, 1986, to ensure effective implementation of the suggested safeguard measures in a time bound and satisfactory manner.	Yes, Noted please.
viii.	All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.	Yes, all statutory clearances which are applicable for SWDP shall be followed.
ix.	The project proponent should advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded CRZ Clearance and copies of clearance letters are available with the State Pollution Control Board (SPCB) and may also be seen on the website of the Ministry of Environment, forest and Climate Change at http://www.envfor.nic.ln. The advertisement should be made within Seven days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the concerned Regional Office of this Ministry	Complied.

4	This 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.	Yes, Noted please.
5	Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Yes, Noted please.
6	.A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parisad/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.	Copy of the clearance letter already sent to local Panchayats. The clearance letter is already displayed in IREL website.
7	The proponent shall upload the status of compliance of the stipulated 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 MoEF&CC, the respective Zonal Office of CPCB and the SPCB.	Yes, will be followed.
8	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 clearance conditions and shall also be sent to the respective Regional Office of the Ministry by e-mail.	Being complied regularly for all facilities of OSCOM, IREL & the environmental statement for each financial year ending 31st March in Form-V is submitted to OSPCB.

Details of Products / Facility: For the period: April 2026 to September 2026:

Sl No.	Product/ Facility	Quantity/ Capacity
1	Sea Water Reverse Osmosis (SWRO)	269414 M^3
2	Multi Effect Desalination (MED)	41540 M^3
3	Discharge in to sea	992246 M^3
4	Total Sea Water Processed	1303200 M^3

आईआरईएल (इंडिया) लिमिटेड
IREL (India) Limited
(Formerly Indian Rare Earths Limited)
(भारत सरकार का उपक्रम)
(A Govt of India Undertaking)
CIN : U15100MH1950GOI008187 Website : www.irel.co.in
Unleashing Values
ISO 9001: 2015, ISO 14001:2015 & ISO 45001 : 2018 Company

3919

TS/ENVR/EC /TDP/

23rd October 2026

To,
The Additional Principal Chief Conservator of Forests,
Government of India,
Ministry of Environment & Forests,
Eastern Regional Office (Eastern Zone),
A/3, Chandrasekharpur, Bhubaneswar-751 023.

Dear Sir,

Sub. - Half-yearly progress report on Technology Demonstration Plant.

Ref.-i. MoEF letter no. J- 11011/44/2014-IA.II (I) Dated.24th Dec.2018

We are herewith enclosing the compliance report for operation of Technology Demonstration Plant with respect to the above referred EC letters for the period April 2026 to September 2026 for kind information please.

As advised, we are also submitting the soft-copy in PDF to email ID – roez.bsr-mef@nic.in for kind information.

With regards.

Yours truly,
For IREL (India) Limited

23/10/2026

(C V R Murty)
GM & Head, OSCOM

उड़ीसा सैण्ड्स कांप्लेक्स, माटिखालो (डाक),छत्रपुर (गंजाम), ओड़िशा - 761045 ,भारत
Orissa Sands Complex, Matikhalo (P.O.),Chatrapur (Ganjam), Odisha - 761 045
फोन / **Tel. : 06811 - 257890 - 95** फैक्स / **Fax : 06811 - 257988**
पंजीकृत कार्यालय : प्लॉट नं. 1207, वीर सावरकर मार्ग, सिद्धिविनायक मंदिर के पास, प्रभादेवी, मुंबई - 400 028
Regd. Office : Plot No. 1207, Veer Savarkar Marg, Near Siddhivinayak Temple, Prabhadevi, Mumbai - 400 028

IREL (India) Limited, OSCOM

Six Monthly Compliance Report (April 2026 to September 2026)

Format for filling up of Compliance report **Annexure-1**

Name of the project: 1. Technology Demonstration Plant (TDP) IREL (India) Limited

Clearance letters No and Date: Compliance of various points raised by MoEF letter no. J-11011/44/2014-IA.II (I) Dated.24th Dec.2018

Period of Compliance Report: **April 2026 to September 2026**

Specific Conditions:

S.No.	Description of Conditions	Status
1	The project proponent shall conduct study on Bio-Degradation of hazardous primary amines and volatile solvents used for solvent extraction through a reputed scientific organization within one year and recommendations of the study shall be implemented. Meanwhile the project proponent shall dispose the solids in the TSDF as per the CPCB guideline.	A project has been given to ICT, Mumbai for the treatment of waste water containing primary amine solvent using novel approach of combined hydrodynamic cavitations & oxidation process during 17.6.2019. The project aimed at to ensure degradation of primary amine solvent in effluent of 5m3/h. Project report prepared by ICT, Mumbai. Based on the recommendation, hydrodynamics cavitational reactor has been installed and implemented.

General Conditions:

SlNo.	General Conditions:	Compliance
1	**Statutory Compliance**	Being complied.
i.	The recommendations of the approval Turtle Conservation Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six- monthly compliance report.	
ii.	The project proponent shall obtain Consent to Estabilsh/Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the Odisha State Pollution Control Board/Committee.	CTE has obtained from OSPCB. The Consent Order No. 2794/25-26 dated 07.01.2026, issued by (OSPCB) is valid up to 31.03.2030.

iii.	The project proponent shall obtain the necessary permission from the Central ground Water Authority, in case of drawl of ground water/ from the competent authority concerned in case of drawl of surface water required for the project.	Noted
iv.	The project proponent shall obtain authorization under the Hazardous and other Waste Management Rules, 2016 as amended from time to time.	The hazardous Waste authorizations has been obtained vide letter no RO/HW-05/2013/3524 dated 30.08.2024 valid upto 31.03.2029 and same shall be used for TDP.
2	**Air quality monitoring and preservation**	
i.	The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emissions with respect to standards prescribed in Environment (Protection) Rules, 1986 as amended from time to time and connect the systems to SPCB and CPCB online servers and calibrated these systems from time to time according to equipment supplier specification through the labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.	Ambient Air Quality Monitoring (AQM) stations and quality of discharged water monitoring is being carried out by M/s ITS Testing Laboratory Private Limited., Noida (U.P), a NABL accredited & MoEF&CC authorized agency, at five stations Mining area (south & north), IREL Colony, Bada Arjipalli, Kanamana and in plant area on regular basis. From the monitoring data, it is seen that the all the data are within the permissible limits. Monitored data is uploaded in company website
ii.	The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through labs recognized under Environment (Protection) Act, 1986.	Ambient air quality with respect to parameters RSPM (PM_{10}), NOx and SO_2 are regularly monitored and submitted to Odisha State Pollution Control Board once in a month and to the Regional office, Ministry of Environment and Forests, Bhubaneswar vide half yearly compliance report.
iii.	The project proponent shall install continuous Ambient Air Quality monitoring systems for monitoring of communication/ criteria parameters relevant to the main pollutants released (e.g. PM_{10} and $PM_{2.5}$ in reference to Pm emission, And SO_2 and NO_x in reference to SO_2 and NO_x emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120° each), covering upwind and downwind	Ambient Air Quality Monitoring (AQM) stations and quality of discharged water monitoring is being carried out by M/s ITS Testing Laboratory Private Limited., Noida (U.P), a NABL accredited & MoEF&CC authorized agency, at five stations Mining area (south & north), IREL Colony, Bada Arjipalli,

	directions.	Kanamana and in plant area on regular basis. From the monitoring data, it is seen that the all the data are within the permissible limits. Monitored data is uploaded in company website
iv.	The project proponent shall submit monthly report of continuous stack emission and ambient air quality monitoring along with results of manual stack monitoring and manual monitoring of air quality/fugitive emissions to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.	Reports are being submitted along with all plants inside the OSCOM premises.
v.	Appropriate Air Pollution Control (APC) systems shall be provided at all the dust generating points including fugitive dust from all vulnerable sources, so as to comply with the prescribed stack emission and fugitive emission standards.	Air Pollution Control (APC) systems are provided at all the dust generating points including fugitive dust from all vulnerable sources, so as to comply with the prescribed stack emission and fugitive emission standards.
vi.	The project proponent shall use leak proof trucks/dumpers for carrying ore and other raw materials and cover them with tarpaulin.	Yes, complied for other operations of OSCOM.
vii.	Wind breaking fence and chemical spraying shall be provided on the raw material stock piles.	Agreed upon.
viii.	The PP shall Design the ventilation system for adequate air changes as per ACGIH document for all tunnels, motor houses, Oil Cellars.	Ventilation system for adequate air changes has been provided.
3.	**Water quality monitoring and preservation**	
i.	The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules, 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrated these systems from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Rules, 1986 or NABL accredited laboratories. (case to case basis small plants: Manual; Large plants: Continuous)	Regular monitoring of water quality upstream and downstream of adjoining water bodies are carried out by an NABL accredited agency and record of monitoring data are maintained and submitted to MoEF&CC.
ii.	The project proponent shall monitor regularly the ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognized under Environment (Protection) Act, 1986 and NABL accredited	Ground water monitoring is regularly carried out inside OSCOM on monthly basis and around OSCOM (from local villages) on quarterly basis in a year and half yearly reports

	laboratories.	are sent to the Regional Office, Ministry of Environment and Forests, Bhubaneswar regularly. From the monitoring data, it is seen that the all the data are within the permissible limits.
iii.	The project proponent shall submit monthly summary report of continuous effluent monitoring and results of manual effluent testing and manual monitoring of ground water quality to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.	Reports are being submitted along with all plants inside the OSCOM premises.
iv.	The project proponent shall provide the slime disposal facility with impervious lining and collection wells for collection of seepage. The water collected from the slime pond shall be treated and recycled.	Being complied
v.	Adhere to 'Zero Liquid Discharge'	Being complied
vi.	Sewage Treatment Plant shall be provided for treatment of domestic waste water to meet the prescribed standards.	Installation of STP having capacity 0.6MLD /600KLD has been completed and functioning. All the effluents are being monitored as per OSCPB & AERB norms.
vii.	Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run-off.	Garland drains and collection pits are provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run-off.
viii.	The project proponent shall practice rainwater harvesting to maximum possible extent.	Implementation of Rain Water harvesting & construction of artificial recharge structures in IREL Plant site as well as in Housing Colony have already been taken up.
ix.	The project proponent shall make efforts to minimize water consumption in the plant complex by segregation of used water, practicing cascade use and by recycling treated water.	Process optimization made to recycle most of the water.
4.	**Noise monitoring and prevention**	
i.	Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as part of six-monthly compliance report.	Being complied. Six monthly reports on the status of the implementation of the stipulated environmental safeguards are being submitted to the MoEF & CC, Regional

		office, BBSR and SPCB.
ii.	The ambient noise levels should conform to the standards prescribed under E (P) A Rules,1986 viz.75 dB(A) during day time and 70 dB (A) during night time.	Being complied
5.	**Energy Conservation measures**	
i.	Provide solar power generation on roof tops of buildings, for lighting of all common areas, street lights, parking around project area and maintain the same regularly.	1KW Solar power generation in operation for lighting of all common areas, street lights, parking around TDP area.
ii.	Provide LED lights in the offices and residential areas.	LED lights were provided to offices and residential areas.
6.	**Waste management**	
i.	The waste oil, grease and other hazardous waste shall be disposed of as per the Hazardous & Other waste (Management & Transboundary Movement) Rules, 2016.	The Hazardous waste authorization has been obtained from OSPCB vide letter no: RO/HW-05/2013/3524 dated 30.08.2024 and is valid up to 31.03.2029.
ii.	Kitchen waste shall be composted or converted to biogas for further use. *(to be decided on case to case basis depending on type and size of plant)*	Not applicable.
7.	**Green Belt and EMP**	
i.	Green belt shall be developed in an area equal to 33 % of the plant area with native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant.	The details of plantation and green belt development are mentioned in Annexure-2.
ii.	The project proponent shall prepare GHG emissions inventory for the plant and shall submit a programme for reduction of the same including carbon sequestration and plantation.	Agreed upon
8.	**Public hearing and Human health issues**	
i.	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.	Agreed upon and HIRA has been prepared & implemented.
ii.	The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act.	Personnel working are provided with PPE's, appropriate , protective respiratory devices such as nose masks, goggles and adequate training and information on safety and health aspects.

iii.	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 temporary structures to be dismantled/ removed after completion of the project.	Most of the labourers engaged for construction work were belonging to nearby villages. However, for outside labourers, the Contractor as well as IREL provided necessary facilities like fuel for cooking, toilets, safe drinking water, change room etc. Medical facilities and safety appliances were provided to all the contractual labourers. The temporary housing sheds were removed after the completion of the project.
iv.	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Occupational health surveillance program of the workers are being carried out periodically to observe any contractions due to exposure to dust/radiation and corrective measures are being taken. The same practice is being followed for the employees who are working in TDP and record is maintained. The annual disease profile of the local village & employee's area is enclosed herewith as Annexure-2,
9.	**Corporate Environment Responsibility**	
i.	The project proponent shall comply with the provisions contained in this Ministry's Om vide F.No. 22-65/2017-IA.III dated 1st May 2018 as applicable, regarding Corporate Environment Responsibility.	Yes, Agreed upon
ii.	The company shall have a well laid down environmental policy duly approved by the Board of Directors. The environmental policy should prescribe for standard operating procedure to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental/ forest/ wildlife norms/ conditions. The company shall have defined system of reporting infringements/deviation/violation of the environmental/ forest/ wildlife norms/ conditions and /or share holders/	Being complied.

	stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six- monthly report.	
iii.	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly report to the head of the organization.	Environment Management Cell is constituted and functioning. In addition, Environment Management Review meetings are being conducted on quarterly basis to carry out to review of the progress of requirements of Environment Management system as per ISO 14001:2015.
iv.	Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry / Regional Office along with the Six Monthly Compliance Report.	The year wise funds are earmarked for environmental protection measures are kept in separate account and are not diverted for any other purpose. The year wise environmental protection measures expenditure reported during the financial year: FY 2024-25 : Rs 0.62 Cr 2025-26 : Rs 0.54 Cr
v.	Self-environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.	Agreed upon.
vi.	All the recommendations made in the Charter on Corporate Responsibility for Environmental Protection (CREP) for the Mineral Beneficiation plants shall be implemented.	Yes, Agreed Upon.

आईआरईएल (इंडिया) लिमिटेड
IREL (India) Limited
(Formerly Indian Rare Earths Limited)
(भारत सरकार का उपक्रम)
(A Govt of India Undertaking)
CIN : U15100MH1950GOI008187 Website : www.irel.co.in
Unleashing Values
ISO 9001: 2015, ISO 14001:2015 & ISO 45001 : 2018 Company

TS/ENVR/EC /TP/ 23rd October 2026

To,
The Additional Principal Chief Conservator of Forests,
Government of India,

Ministry of Environment & Forests,
Eastern Regional Office (Eastern Zone),
A/3, Chandrasekharpur, Bhubaneswar-751 023.

Dear Sir,

Sub. - Half-yearly progress report on Thorium Section operations at OSCOM

Ref.- i. MOE&F letter no.J-14011/5/91/IA-I dated 24th Sept'93
ii. MOE&F letter no.J-14011/5/91/IA-II dated 7th Apr'2000

We are herewith enclosing the compliance report for operation of Thorium Section (merged with Rare Earths Extraction Plant) with respect to the above referred EC letters for the period April 2026 to September 2026 for kind information please.

As advised, we are submitting the soft-copy in PDF to email ID – roez.bsr-mef@nic.in for kind information.

With regards.

Yours truly,
For IREL (India) Limited

(C V R Murty)
GM & Head, OSCOM

उड़ीसा सैण्ड्स कांप्लेक्स, माटिखालो (डाक),छत्रपुर (गंजाम), ओड़िशा - 761045 ,भारत
Orissa Sands Complex, Matikhalo (P.O.),Chatrapur (Ganjam), Odisha - 761 045
फोन / **Tel. : 06811 - 257890 - 95** फैक्स / **Fax : 06811 - 257988**
पंजीकृत कार्यालय : प्लॉट नं. 1207, वीर सावरकर मार्ग, सिद्धिविनायक मंदिर के पास, प्रभादेवी, मुंबई - 400 028
Regd. Office : Plot No. 1207, Veer Savarkar Marg, Near Siddhivinayak Temple, Prabhadevi, Mumbai - 400 028

IREL(India)Limited, OSCOM

Six Monthly Compliance Report (April 2026 to September 2026)

Name of the project: 1. Thorium Plant of OSCOM, IREL (India)Limited
Clearance letters No and Date: i. Letter no. J- 14011/5/91 /IA-I dtd. 24.9.93 & J-14011/5/91/IA-II dated 07.04.2000.

Period of Compliance Report: **April 2026 to September 2026**

.No.	Description of Conditions	Status
1- i.	All the stipulations of Atomic Energy Regulatory Board (AERB) pertaining to safety and related aspects shall be implemented and it will be ensured that :- (a) Radioactive wastes (solids and semi-solids) are properly treated and disposed off after proper containment in accordance with the standards/guidelines prescribed by ICRP/AERB.	Thorium section is merged with REEP operation as a section from 2015 onwards. During the period all the radioactive wastes were treated, contained where-ever necessary & disposed off as per the plans submitted by OSCOM and approved by AERB. The plant has submitted necessary particulars of radioactive wastes disposed during the period: October 2025 to March 2026 to as per the Radioactive Waste Management Rules 1989.
	(b) Thorium and Uranium content in Sodium Nitrate to be disposed off through sale shall be regularly monitored and shall not exceed the limits prescribed by AERB.	No sodium nitrate solution was disposed off through sales during the period: April 2026 to September 2026. The sodium nitrate solution were stored in lined pond for natural evaporation & after evaporation, the sodium nitrate crystals were stored in RCC trenches.
	(c) The liquid effluents emanating from different processes are treated to conform to the standards prescribed by Central/State Pollution Control Board and International Commission for Radiological Protection (ICRP/AERB).	The radioactive liquid effluent mainly emanate from operation of Thorium Plant. The effluent is treated and after monitoring the same is pumped to neutralization tank and the supernatant is pumped to ETP discharge through the neutralization system of OSCOM. The Gross α & Gross β activity levels in the treated effluent are well within AERB prescribed limits 37.0 Bq/L and 370 Bq/L respectively during the period April 2026 to September 2026.

IREL(India)Limited, OSCOM

Six Monthly Compliance Report (April 2026 to September 2026)

.No.	Description of Conditions	Status
1-ii	Adequate number of air quality monitoring stations should be set up keeping in view the direction of wind flow, sensitive receptors as well as where maximum ground level concentration is anticipated. Also the manual monitoring of stack emissions should be carried out at regular intervals.	Air Quality Monitoring (AQM) stations: AQM monitoring is being carried out by M/s ITS Testing Laboratory Private Limited,Noida,U.P , a NABL accredited & MoEF & CC authorized agency, at five stations Mining area (south & north), IREL Colony, Bada Arjipalli & Kanamana and in plant area on regular basis. The data for the period: April 2026 to September 2026 is enclosed in Annexure-2. From the monitoring data it is seen that the PM_{10} levels are well within permissible limit of 100 $\mu g/m^3$ and $PM_{2.5}$ levels are well within permissible limit of 60 $\mu g/m^3$.
		Stack monitoring is being carried out for all the stacks of running plants. The monitoring results indicate that the Acid mist values in the stack emission from Thorium plant (merged with REEP) are well within the permissible limit of 50 mg/m^3. The stack emission monitoring report is enclosed in Annexure-2.
1-iii	The quality of liquid effluents should be regularly monitored. The treated effluents conforming to the prescribed standards should be utilized for development of green belt.	Being complied. The monitoring results of liquid effluent from Pond No.1(dredge pond) & ETP discharge during the period: April 2026 to September 2026 are given in Annexure-2. The water from Pond No.1(dredge pond) is reused for MSP operation & also for plantation development in mined out area.
1-iv	Radiation level at different locations of the plant should be regularly monitored and records maintained.	Being complied. A Health Physics Unit of Bhaba Atomic Research Center (BARC) is stationed at OSCOM and regular radiation monitoring is carried out in the plant and periodic reports are submitted to SARCOP/AERB, monitoring report enclosed in Annexure-2.
1-v	Health of occupational workers as well as population living in the proximity of the plant (5 Km) should be monitored and records maintained.	Regular employees & Contractual Workers are subjected to initial & periodic Medical Examinations as per Statutory guidelines and records maintained at Medial Department, total cases attended during 2025 are 8370. Villagers of adjoining areas are provided medical treatment facilities on regular basis through Family Health Clinic & Occupational Health Centre & record maintained, total cases attended during 2025 are 5046. The annual disease profile of the local village & employee's area is enclosed herewith as Annexure-2.

Six Monthly Compliance Report (April 2026 to September 2026)

.No.	Description of Conditions	Status
1-vi	The emergency power requirement will be met from the already installed DG sets (610 KVA) and no additional DG sets shall be installed.	Emergency power requirement is being met from the existing facilities. No additional equipment has been installed.
1-vii	The steam requirement will be met from the existing boiler sets and no additional boiler set shall be installed.	Steam generation capacity of 18 t/h Boiler is under operation to meet the steam requirement of Thorium Section which is merged with REEP.
1-viii	Necessary precautions should be taken in respect of Occupational workers in coal handling area of the boiler unit.	Water spraying is being carried out for suppression of dust. Personnel working in dusty areas are provided appropriate protective respiratory devices such as nose masks, goggles.
1-ix	A satisfactory comprehensive EIA report should be submitted by March 1994 incorporating all the suggestion / observations made during the presentation on rapid EIA report.	Complied
1-x	Action plan for implementation of the Environmental Management Plan relating to air, water, noise, solid wastes, social-economic aspects, green belt development and environmental surveillance shall be prepared and implemented as per schedule and report submitted to Ministry of Environment and Forests every six months.	Being complied as per EMP. Monitoring results on air, water, noise, soil etc. are enclosed in Annexure-2.
2.	A separate environment management cell with laboratory facilities and suitably qualified people should be set up.	Environment Management Cell is constituted and functioning. In addition, quarterly Environment Management Review meetings are being conducted to review the progress of requirements of Environment Management system as per ISO 14001: 2015.
3.	Adequate financial provisions should be made item-wise for implementation of the above provisions and there must be no diversion of such fund specified funds.	Being complied. During the year 2025-26, expenditure of Rs.9.98 Cr was made towards environmental up-gradation, pollution control and CSR activities. Financial provision for the year 2026-27 has already been made to meet the requirement.
4.	The stipulations could be modified, altered or additional incorporated if felt necessary by Ministry of Environment & Forests after reviewing the comprehensive EIA report to be submitted by the proponents.	Complied. The Comprehensive EIA & EMP report was prepared for OSCOM and Thorium Plant was prepared and submitted to MoEF, New Delhi vides our letter No. TS/Envir/4669-A dated 26th April 1994 to MoEF Regional Office (Eastern Zone), Bhubaneswar vide our letter No.TS/Envir/7401-A dated 24th June 1994.

Six Monthly Compliance Report (April 2026 to September 2026)

.No.	Description of Conditions	Status
5.	The stipulations will be implemented among others under the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981 and the Environment (Protection) Act, 1986.	Stipulations given by State Pollution Control Board, Odisha are complied with & monthly statements are being regularly submitted.

ITS TESTING LABORATORY PRIVATE LIMITED

Laboratory: A-114, Sector-80, Phase-II Noida, Gautam Budh Nagar - 201305, (U.P.)
(An ISO 9001: 2015, ISO 14001:2015 & ISO 45001:2018 Certified Laboratory)
Website: www.itslab.in, Email: itlrclab@gmail.com, info@itslab.in, contact@itslab.in
+91 9911659800, 9305780312, 09958849764

TC-11181

TEST REPORT — Issue Date-24/09/2026

Stack Emission Analysis — Report N0.- ITS/IREL-SE-01

Issue To	M/S IREL (India) Limited,OSCOM,Matikhalo, Chatrapur, Ganjam, Odisha
Samp-le Location	Boiler(ST-1), Main dryer(ST-2) , Shaft dryer-Ilminite(ST-3) , Shaft dryer Rutile(ST-4), Sillimanite dryer(ST-5), Garnet FBD(ST-6),Zircon dryer(ST-7), RE mineral Up gradation section(ST-8), REEP Stack -1(Attack plant)(ST-9), REEP Stack2-REChloride (Active plant)(ST-10), Main FBD(ST-11),TDP (Boiler)-12
Nature of sampling	Source emission
Sampling Done By	Mr.Suresh Pradhan
Instrument used	Stack monitoring kit, Flue Gas Analyzer
Sampling Period	APRIL 2026-SEP-2026
Parameter	Particulate matter (mg /Nm3)

Month	Date	ST-1	ST-2	ST-3	ST-4	ST-5	ST-6	ST-7	ST-8	ST-9	ST-10	ST-11	ST-12
APRIL	2nd	76.4	68.3	72.6	65.8	64.3	67.7	76.3	68.8	10.33	13.7	56.6	71.5
	4th	72.2	64.3	71.1	66	71.4	62.2	71.3	67.5	12.1	10.5	57.2	71.8
MAY	2nd	76.8	68.1	69.6	65.5	63.2	67	76.4	68.3	10.22	13.4	56.3	71.7
	4th	72.3	64.1	71	66.2	71.3	62.1	71.8	67.6	12.7	10.3	57.8	71.3
JUNE	2nd	72.6	65.1	73.4	61.8	62.3	66.1	73.2	65.9	10.8	12.6	56.4	71.1
	4th	71.2	68.5	71.1	65.8	69.4	62.2	72.6	69.2	12.4	10.3	55.3	71.7
JULY	1st	76.2	67.2	69.5	65.2	64.6	67.8	76.2	68.7	10.2	13.2	56.6	70.5
	4th	71.5	64.8	71.2	65.2	71.7	62.4	71.3	67.8	12.8	10.8	57.4	71.9
AUGUST	1st	75.2	67.4	69.1	65.8	64.6	67.4	76.8	68.4	10.8	13.6	55.3	70.4
	4th	71.2	66.8	72.5	66.4	72.4	61.5	72.8	65.5	12.9	10.8	57.8	71.6
SEP	1ST	71.5	65.2	73.2	61.6	62.8	66.2	73.5	65.6	10.4	12.3	56.8	71.5
	3rd	72.1	68.4	71.6	65.1	69.5	62.6	72.2	69.1	12.6	10.2	55.4	71.3
	Maximum	76.8	68.5	73.4	66.4	72.4	67.8	76.8	69.2	12.9	13.7	57.8	71.9
	Minimum	71.2	64.1	69.1	61.6	62.3	61.5	71.3	65.5	10.2	10.2	55.3	70.4
	Average	73.27	66.52	71.33	65.03	67.29	64.60	73.70	67.70	11.52	11.81	56.58	71.36
	SD	2.20	1.70	1.43	1.61	3.97	2.60	2.12	1.34	1.14	1.45	0.90	0.48

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OSPCB Permissible Limits- 150 mg/Nm3

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TC-11181

TEST REPORT Issue Date-24/09/2026

Stack Emission Analysis Report N0.- ITS/IREL-SE-02

Issue To	M/S IREL (India) Limited,OSCOM,Matikhalo, Chatrapur, Ganjam, Odisha
Sampling Location	REEP Stack -1(Attack plant)(ST-9),REEP Stack2-REChloride (Active plant)(ST-10)
Sampling Done By	Mr.Suresh Pradhan
Nature of sampling	Source emission
Instrunment used	Stack monitoring kit, Flue Gas Analyzer
Sampling period	APRIL- 2026-SEP-2026
Parameter	Acid mist (mg /Nm3)

Frequency			Location
month	Week	ST-9	ST-10
APRIL	2nd	4.6	5.3
	4th	4.6	5.4
MAY	2nd	4.4	5.2
	4th	4.5	5.2
JUNE	2nd	4.2	5.3
	4th	4.6	5.8
JULY	1st	4.2	5.1
	4th	4.4	5.6
AUGUST	1st	4.6	5.2
	4th	4.2	5.3
SEP	1st	4.6	5.9
	3 rd	4.6	5.4
Maximum		4.6	5.9
Minimum		4.2	5.1
Average		4.43	5.42
SD		0.20	0.29

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OSPCB Permissible Limits- 50 mg/Nm3

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TC-11181

TEST REPORT	Issue Date-24/09/2026
Ambient Air Quality Analysis	Report N0.- ITS/IREL-AAQ-01
Issue To	M/S IREL (India) Limited,OSCOM, Matikhalo, Chatrapur, Ganjam, Odisha
Work Order	GEMC 51687709360706/07/SC-11684,Dated-19.11.2024
Sampling Location	South mining Area SMP-2 A1
Sampling Done By	Mr.Suresh Pradhan
Instrument Used	Respirable Dust Sampler, Fine Dust sampler, CO meter, benzene sampler
Sampling Period	April -2026-September-2026

Month	Week	PM10, µg /m3	PM2.5 µg /m3	S0x µg /m3	N0x µg /m3	NH3 µg /m3	CO mg/m3	Pb ng /m3	O3 µg /m3	C6H6 µg /m3	BAP ng /m3	Ni ng /m3	As ng /m3
APR	1st	48.4	28.9	7.21	13.4	<20	0.75	<0.1	14.6	<1.0	<0.1	<1.0	<1.0
	2nd	48.5	28.3	7.64	14.2	<20	0.64	<0.1	12.4	<1.0	<0.1	<1.0	<1.0
	3rd	48.2	26.5	7.52	12.32	<20	0.76	<0.1	12.8	<1.0	<0.1	<1.0	<1.0
MAY	1st	48.1	28.5	7.18	13.38	<20	0.74	<0.1	14.2	<1.0	<0.1	<1.0	<1.0
	2nd	48.6	28.2	7.64	14	<20	0.62	<0.1	12.3	<1.0	<0.1	<1.0	<1.0
	3rd	48.1	26.2	7.15	12.16	<20	0.72	<0.1	12.6	<1.0	<0.1	<1.0	<1.0
JUNE	1st	46.3	28.2	7.24	13.43	<20	0.65	<0.1	14.2	<1.0	<0.1	<1.0	<1.0
	2nd	48.2	28.6	7.65	14	<20	0.66	<0.1	12.2	<1.0	<0.1	<1.0	<1.0
	3rd	47.5	29.5	7.32	13.1	<20	0.72	<0.1	14.1	<1.0	<0.1	<1.0	<1.0
JULY	1st	47.5	28.2	7.36	13.25	<20	0.72	<0.1	14.6	<1.0	<0.1	<1.0	<1.0
	2nd	48.2	28.6	7.65	14	<20	0.66	<0.1	12.2	<1.0	<0.1	<1.0	<1.0
	3rd	48.8	26.5	7.24	12.32	<20	0.72	<0.1	12.6	<1.0	<0.1	<1.0	<1.0
AUGUST	1st	45.2	26.4	7.15	13.8	<20	0.68	<0.1	14.2	<1.0	<0.1	<1.0	<1.0
	2nd	46.4	29.2	7.6	14.2	<20	0.64	<0.1	12.5	<1.0	<0.1	<1.0	<1.0
	3rd	47.5	26.3	7.32	13.65	<20	0.78	<0.1	12.9	<1.0	<0.1	<1.0	<1.0
SEP	1st	44.4	27.4	7.7	12.65	<20	0.68	<0.1	14.5	<1.0	<0.1	<1.0	<1.0
	2nd	49.8	27.8	7.2	13.86	<20	0.78	<0.1	14.9	<1.0	<0.1	<1.0	<1.0
	3rd	47.4	29.2	7.77	13.86	<20	0.79	<0.1	13.2	<1.0	<0.1	<1.0	<1.0
Maximum		49.8	29.5	7.77	14.2	<20	0.79	<0.1	14.9	<1.0	<0.1	<1.0	<1.0
Minimum		44.4	26.2	7.15	12.16	<20	0.62	<0.1	12.2	<1.0	<0.1	<1.0	<1.0
Average		47.6167	27.92	7.42	13.42	<20	0.71	<0.1	13.39	<1.0	<0.1	<1.0	<1.0
SD		1.32	1.10	0.22	0.67	<20	0.05	<0.1	0.99	<1.0	<0.1	<1.0	<1.0
NAAQ Standard		80	80	100	60	1	6	400	180	1	20	5	4

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TC-11181

TEST REPORT **Issue Date-24/09/2026**

Ambient Air Quality Analysis **Report N0.- ITS/IREL-AAQ-02**

Issue To	M/S IREL (India) Limited,OSCOM, Matikhalo, Chatrapur, Ganjam, Odisha
Work Order	GEMC 51687709360706/07/SC-11684,Dated-19.11.2024
Sampling Location	North mining Area SMP-3 A2
Sampling Done By	Mr.Suresh Pradhan
Instrument Used	Respirable Dust Sampler, Fine Dust sampler, CO meter, benzene sampler
Sampling Period	April -2026-September-2026

Month	Week	PM10, µg	PM2.5 µg /m3	S0x µg /m3	N0x µg /m3	NH3 µg /m3	CO mg/m3	Pb ng /m3	O3 µg /m3	C6H6 µg /m3	BAP ng /m3	Ni ng /m3	As ng /m3
APR	1st	48.4	28.9	7.21	13.4	<20	0.75	<0.1	14.6	<1.0	<0.1	<1.0	<1.0
	2nd	47.1	27.3	8.41	12.4	<20	0.66	<0.1	13.6	<1.0	<0.1	<1.0	<1.0
	3rd	47.9	25.8	7.45	12.35	<20	0.75	<0.1	13.8	<1.0	<0.1	<1.0	<1.0
MAY	1st	47.2	27.1	8.4	14.2	<20	0.6	<0.1	13.1	<1.0	<0.1	<1.0	<1.0
	2nd	47.5	27.2	8.4	12.2	<20	0.65	<0.1	13.1	<1.0	<0.1	<1.0	<1.0
	3rd	47.2	25.4	7.32	12.31	<20	0.74	<0.1	13.6	<1.0	<0.1	<1.0	<1.0
JUNE	1st	47.9	27.6	8.2	14.8	<20	0.68	<0.1	13.1	<1.0	<0.1	<1.0	<1.0
	2nd	47.3	27.4	8.8	14.6	<20	0.64	<0.1	13.5	<1.0	<0.1	<1.0	<1.0
	3rd	47.7	27.2	8.9	14.7	<20	0.68	<0.1	13.5	<1.0	<0.1	<1.0	<1.0
JULY	1st	47.8	27.2	8.4	14.8	<20	0.62	<0.1	13.4	<1.0	<0.1	<1.0	<1.0
	2nd	47.1	27.8	8.4	12.6	<20	0.68	<0.1	13.4	<1.0	<0.1	<1.0	<1.0
	3rd	47.2	25.4	7.32	12.45	<20	0.72	<0.1	13.6	<1.0	<0.1	<1.0	<1.0
AUGUST	1st	47.4	27	8	14.4	<20	0.6	<0.1	13.8	<1.0	<0.1	<1.0	<1.0
	2nd	47.3	27.4	8.42	12.3	<20	0.7	<0.1	13.8	<1.0	<0.1	<1.0	<1.0
	3rd	47.8	25.8	7.45	13.86	<20	0.75	<0.1	13.4	<1.0	<0.1	<1.0	<1.0
SEP	1st	47.2	27.4	7.9	13.01	<20	0.69	<0.1	13.8	<1.0	<0.1	<1.0	<1.0
	2nd	47.6	27.2	8.8	14.2	<20	0.68	<0.1	13.8	<1.0	<0.1	<1.0	<1.0
	3rd	47.5	29.7	7.82	13.56	<20	0.78	<0.1	13.4	<1.0	<0.1	<1.0	<1.0
Maximum		**48.4**	**29.7**	**8.9**	**14.8**	**<20**	**0.78**	**<0.1**	**14.6**	<1.0	<0.1	<1.0	<1.0
Minimum		**47.1**	**25.4**	**7.21**	**12.2**	**<20**	**0.6**	**<0.1**	**13.1**	<1.0	<0.1	<1.0	<1.0
Average		**47.51**	**27.16**	**8.09**	**13.45**	**<20**	**0.69**	**<0.1**	**13.57**	<1.0	<0.1	<1.0	<1.0
SD		**0.35**	**1.09**	**0.55**	**1.00**	**<20**	**0.05**	**<0.1**	**0.35**	<1.0	<0.1	<1.0	<1.0
NAAQ Standard		**80**	**80**	**100**	**60**	**1**	**6**	**400**	**180**	1	20	5	4

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TC-11181

TEST REPORT Issue Date-24/09/2026

Ambient Air Quality Analysis Report N0.- ITS/IREL-AAQ-03

Issue To	M/S IREL (India) Limited,OSCOM, Matikhalo, Chatrapur, Ganjam, Odisha
Work Order	GEMC 51687709360706/07/SC-11684,Dated-19.11.2024
Sampling Location	IREL Commumity centre-A3
Sampling Done By	Mr.Suresh Pradhan
Instrument Used	Respirable Dust Sampler, Fine Dust sampler, CO meter, benzene sampler
Sampling Period	April -2026-September-2026

Month	Week	PM10, µg /m3	PM2.5 µg /m3	S0x µg /m3	N0x µg /m3	NH3 µg /m3	CO mg/m3	Pb ng /m3	O3 µg /m3	C6H6 µg /m3	BAP ng /m3	Ni ng /m3	As ng /m3
APR	1st	45	29.2	7.82	10.6	<20	0.74	<0.1	12.1	<1.0	<0.1	<1.0	<1.0
	2nd	45	29.6	8.4	13.6	<20	0.75	<0.1	13.4	<1.0	<0.1	<1.0	<1.0
	3rd	45.1	22.4	8.11	14.35	<20	0.78	<0.1	14.4	<1.0	<0.1	<1.0	<1.0
MAY	1st	45.2	29.4	7.79	10.1	<20	0.72	<0.1	12.1	<1.0	<0.1	<1.0	<1.0
	2nd	45	29.2	8.4	13.5	<20	0.72	<0.1	13.1	<1.0	<0.1	<1.0	<1.0
	3rd	45.2	22.1	8.1	14.2	<20	0.76	<0.1	14.2	<1.0	<0.1	<1.0	<1.0
JUNE	1st	45.1	29.3	7.65	10.2	<20	0.74	<0.1	12.3	<1.0	<0.1	<1.0	<1.0
	2nd	45.7	29.8	7.54	10.6	<20	0.74	<0.1	12.3	<1.0	<0.1	<1.0	<1.0
	3rd	45.4	29.5	7.8	10.5	<20	0.76	<0.1	12.4	<1.0	<0.1	<1.0	<1.0
JULY	1st	45.6	29.5	7.78	10.4	<20	0.76	<0.1	12.1	<1.0	<0.1	<1.0	<1.0
	2nd	46	28.2	8.25	13.1	<20	0.72	<0.1	13.4	<1.0	<0.1	<1.0	<1.0
	3rd	45.24	22.15	8.12	14.18	<20	0.78	<0.1	14.2	<1.0	<0.1	<1.0	<1.0
AUGUST	1st	46.2	28.5	7.5	10.2	<20	0.73	<0.1	12.1	<1.0	<0.1	<1.0	<1.0
	2nd	45.2	27.8	8.12	13.4	<20	0.76	<0.1	13.9	<1.0	<0.1	<1.0	<1.0
	3rd	43.5	26.5	7.8	14.08	<20	0.74	<0.1	14.9	<1.0	<0.1	<1.0	<1.0
SEP	1st	45.1	29.5	7.6	10.2	<20	0.76	<0.1	12.4	<1.0	<0.1	<1.0	<1.0
	2nd	45.5	29.3	7.54	10.7	<20	0.75	<0.1	12.9	<1.0	<0.1	<1.0	<1.0
	3rd	46.8	29.2	7.82	12.4	<20	0.75	<0.1	12.6	<1.0	<0.1	<1.0	<1.0
Maximum		46.8	29.8	8.4	14.35	<20	0.78	<0.1	14.9	<1.0	<0.1	<1.0	<1.0
Minimum		43.5	22.1	7.5	10.1	<20	0.72	<0.1	12.1	<1.0	<0.1	<1.0	<1.0
SD		0.66	2.71	0.29	1.74	<20	0.02	<0.1	0.93	<1.0	<0.1	<1.0	<1.0
NAAQ Standard		80	80	100	60	1	6	400	180	1	20	5	4

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TC-11181

TEST REPORT Issue Date-24/09/2026

Ambient Air Quality Analysis Report N0.- ITS/IREL-AAQ-04

Issue To	M/S IREL (India) Limited,OSCOM, Matikhalo, Chatrapur, Ganjam, Odisha
Work Order	GEMC 51687709360706/07/SC-11684,Dated-19.11.2024
Sampling Location	Kanamana village-A4
Sampling Done By	Mr.Suresh Pradhan
Instrument Used	Respirable Dust Sampler, Fine Dust sampler, CO meter, benzene sampler
Sampling Period	April -2026-September-2026

Month	Week	PM10, µg /m3	PM2.5 µg /m3	S0x µg /m3	N0x µg /m3	NH3 µg /m3	CO mg/m3	Pb ng /m3	O3 µg /m3	C6H6 µg /m3	BAP ng /m3	Ni ng /m3	As ng /m3
APR	1st	47.2	28.2	8.36	13.7	<20	0.72	<0.1	11.2	<1.0	<0.1	<1.0	<1.0
	2nd	47.2	28.4	9.3	12.1	<20	0.74	<0.1	12.4	<1.0	<0.1	<1.0	<1.0
	3rd	46.5	26.6	8.56	13.21	<20	0.62	<0.1	13.7	<1.0	<0.1	<1.0	<1.0
MAY	1st	47.1	28.4	8.21	13.5	<20	0.71	<0.1	11.8	<1.0	<0.1	<1.0	<1.0
	2nd	47	28.1	9.25	12	<20	0.73	<0.1	12.2	<1.0	<0.1	<1.0	<1.0
	3rd	46.3	26.2	8.15	13.14	<20	0.6	<0.1	13.6	<1.0	<0.1	<1.0	<1.0
JUNE	1st	47.2	28.5	8.34	13.6	<20	0.75	<0.1	11.2	<1.0	<0.1	<1.0	<1.0
	2nd	47.4	28.7	8.28	13.6	<20	0.77	<0.1	11.8	<1.0	<0.1	<1.0	<1.0
	3rd	47.8	28.6	8.24	13.3	<20	0.78	<0.1	11.2	<1.0	<0.1	<1.0	<1.0
JULY	1st	47.8	28.4	8.22	13.5	<20	0.77	<0.1	11.8	<1.0	<0.1	<1.0	<1.0
	2nd	47	28.1	9.25	12	<20	0.73	<0.1	14.2	<1.0	<0.1	<1.0	<1.0
	3rd	46.17	26.23	8.45	12.6	<20	0.6	<0.1	13.6	<1.0	<0.1	<1.0	<1.0
AUGUST	1st	47	28.1	8.2	13.1	<20	0.78	<0.1	11.8	<1.0	<0.1	<1.0	<1.0
	2nd	46.6	28.2	9	12	<20	0.73	<0.1	14.8	<1.0	<0.1	<1.0	<1.0
	3rd	46.6	26.27	8.62	12.6	<20	0.64	<0.1	13.2	<1.0	<0.1	<1.0	<1.0
SEP	1st	46.4	28.1	8.3	13.2	<20	0.78	<0.1	11.8	<1.0	<0.1	<1.0	<1.0
	2nd	47.2	28.6	8.32	13.2	<20	0.74	<0.1	11.2	<1.0	<0.1	<1.0	<1.0
	3rd	46.4	28.8	8.14	13.2	<20	0.82	<0.1	11.5	<1.0	<0.1	<1.0	<1.0
Maximum		47.8	28.8	9.3	13.7	<20	0.82	<0.1	14.8	<1.0	<0.1	<1.0	<1.0
Minimum		46.17	26.2	8.14	12	<20	0.6	<0.1	11.2	<1.0	<0.1	<1.0	<1.0
Average		46.937	27.92	8.51	12.98	<20	0.72	<0.1	12.39	<1.0	<0.1	<1.0	<1.0
SD		0.49	0.90	0.40	0.60	<20	0.07	<0.1	1.15	<1.0	<0.1	<1.0	<1.0
NAAQ Standard		80	80	100	60	1	6	400	180	1	20	5	4

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TC-11181

TEST REPORT Issue Date-24/09/2026

Ambient Air Quality Analysis Report N0.- ITS/IREL-AAQ-05

Issue To	M/S IREL (India) Limited,OSCOM, Matikhalo, Chatrapur, Ganjam, Odisha
Work Order	GEMC 51687709360706/07/SC-11684,Dated-19.11.2024
Sampling Location	Badaaryapalli village-A5
Sampling Done By	Mr.Suresh Pradhan
Instrument Used	Respirable Dust Sampler, Fine Dust sampler, CO meter, benzene sampler
Sampling Period	April -2026-September-2026

Month	Week	PM10, µg /m3	PM2.5 µg /m3	S0x µg /m3	µg /m3	NH3 µg /m3	CO mg/m3	Pb ng /m3	µg /m3	C6H6 µg /m3	BAP ng /m3	Ni ng /m3	As ng /m3
APR	1st	46.1	24.4	8.42	12.3	<20	0.68	<0.1	12.1	<1.0	<0.1	<1.0	<1.0
	2nd	46.1	24.1	7.68	10.6	<20	0.69	<0.1	10.2	<1.0	<0.1	<1.0	<1.0
	3rd	46.4	27.3	7.49	11.52	<20	0.64	<0.1	10.6	<1.0	<0.1	<1.0	<1.0
MAY	1st	46.2	24.2	8.39	12.2	<20	0.65	<0.1	12	<1.0	<0.1	<1.0	<1.0
	2nd	46.2	24	7.52	10.6	<20	0.65	<0.1	10.5	<1.0	<0.1	<1.0	<1.0
	3rd	46.2	27.1	7.2	11.56	<20	0.68	<0.1	10.3	<1.0	<0.1	<1.0	<1.0
JUNE	1st	46.7	24.5	8.42	12.4	<20	0.6	<0.1	12.4	<1.0	<0.1	<1.0	<1.0
	2nd	46.3	24.7	8.42	12.6	<20	0.62	<0.1	12.4	<1.0	<0.1	<1.0	<1.0
	3rd	45.4	23.2	8.1	12.4	<20	0.64	<0.1	12	<1.0	<0.1	<1.0	<1.0
JULY	1st	46.4	24.5	8.52	12.6	<20	0.64	<0.1	12	<1.0	<0.1	<1.0	<1.0
	2nd	46.8	24.5	7.35	10.7	<20	0.62	<0.1	12.5	<1.0	<0.1	<1.0	<1.0
	3rd	47.2	27.18	7.2	12.44	<20	0.68	<0.1	10.3	<1.0	<0.1	<1.0	<1.0
AUGUST	1st	46.1	24.3	8.45	12.2	<20	0.72	<0.1	12	<1.0	<0.1	<1.0	<1.0
	2nd	46.2	26.4	8.2	10.5	<20	0.68	<0.1	12.6	<1.0	<0.1	<1.0	<1.0
	3rd	47.11	25.32	7.58	12.4	<20	0.72	<0.1	12.2	<1.0	<0.1	<1.0	<1.0
SEP	1st	46.2	24.2	8.4	12.2	<20	0.62	<0.1	12.8	<1.0	<0.1	<1.0	<1.0
	2nd	46.8	24.3	8.35	12.5	<20	0.62	<0.1	12.1	<1.0	<0.1	<1.0	<1.0
	3rd	46.1	23.4	8.12	12.8	<20	0.66	<0.1	12.2	<1.0	<0.1	<1.0	<1.0
Maximum		47.2	27.3	8.52	12.8	<20	0.72	<0.1	12.8	<1.0	<0.1	<1.0	<1.0
Minimum		45.4	23.2	7.2	10.5	<20	0.6	<0.1	10.2	<1.0	<0.1	<1.0	<1.0
Average		46.36	24.87	7.99	11.92	<20	0.66	<0.1	11.73	<1.0	<0.1	<1.0	<1.0
SD		0.43	1.27	0.48	0.79	<20	0.04	<0.1	0.90	<1.0	<0.1	<1.0	<1.0
NAAQ Standard		80	80	100	60	1	6	400	180	1	20	5	4

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TC-11181

Test Report — Issue Date-24/09/2026

Effluent water test analysis — Report NO.- ITS/IREL-W-01

Name and address	M/s. IREL (India) Limited, Matikhalo, Chatrapur, Ganjam, Odisha
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024
Sampling Done By	Mr. Suresh Pradhan
Sample Description	Treated Effluen water(POND-1)
Sample Quantity	2 Liter
Sampling period	APRIL- 2026 to SEPTEMBER-2026

S.No	Parameter	Permissible norms by CPCB	APRIL	MAY	JUNE	JULY	AUGUST	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	5.5 to 9.0	7.38	7.45	7.68	7.39	7.42	7.56	7.68	7.38	7.48	0.12
2	Temperature	-	18	18.6	20.3	20.8	19.5	20.4	20.8	18	19.60	1.11
3	Turbidity, NTU	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0	0	<1.0	0.00
4	Colour, Hazen	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	-	245	252	188	260	270	202	270	188	236.17	33.25
6	Total Dissolved Solids,mg/l	-	835	845	775	855	870	788	870	775	828.00	38.05
7	Total Suspended Solids,mg/l	100	12	10	18	12	10	15	18	10	12.83	3.13
8	Oil & Grease,mg/l	20	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	0	0	<3.0	0.00
9	Biochemical Oxygen Demand,mg/l	100	5.9	5.8	5.9	5.9	6	5.8	6	5.8	5.88	0.08
10	Chemical Oxygen Demand,mg/l	250	20	16	20	15	16	22	22	15	18.17	2.86
11	Dissolved Oxygen,mg/l	-	6.6	6.5	6.5	6.4	6.5	6.8	6.8	6.4	6.55	0.14
12	Chloride as Cl, mg/l	-	98	94	82	92	96	90	98	82	92.00	5.66
13	Sulphate (as SO4),mg/l	-	42	40	42	42	46	42	46	40	42.33	1.97
14	Fluoride (as F),mg/l	15	0.31	0.32	0.35	0.3	0.32	0.36	0.36	0.3	0.33	0.02
15	Total Hardness (as CaCO3),mg/l	-	224	230	190	225	240	216	240	190	220.83	17.05

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16	Calcium (as Ca),mg/l	-	49.6	48.4	50	52	62	42	62	42	50.67	6.51
17	Magnesium (as Mg),mg/l	-	24.5	26.7	18.3	22.05	20.82	19.5	26.7	18.3	21.98	3.15
18	Sodium (as Na),mg/l	-	62	60	32	45	32	44	62	32	45.83	13.03
19	Potassium (as K),mg/l	-	4.6	4.5	3.6	4.6	4.8	3.5	4.8	3.5	4.27	0.56
20	Total Nitrogen,mg/l	-	8.3	8.2	8.9	8.5	8.2	8.2	8.9	8.2	8.38	0.28
21	Dissolved Phosphate (as P),mg/	-	0.42	0.41	0.48	0.4	0.4	0.44	0.48	0.4	0.43	0.03
22	Iron (as Fe),mg/l	3	0.74	0.73	0.78	0.71	0.36	0.72	0.78	0.36	0.67	0.16
23	Copper (as Cu),mg/l	3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
24	Cadmium (as Cd),mg/l	2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
25	Lead (as Pb),mg/l	2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
26	Zinc (as Zn),mg/l	15	0.75	0.74	0.76	0.71	0.7	0.75	0.76	0.7	0.74	0.02
27	Total Chromium as Cr,mg/l	2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
28	Hexavalent Chromium (as Cr+6),mg/l	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	0.00
29	Phenolic Compounds ,mg/l	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
30	Total Residual Chlorine,mg/l	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	0.00
31	Total Kjeldhal nitrogen,mg/l	100	4.68	4.75	4.4	4.65	4.86	4.6	4.86	4.4	4.66	0.15
32	Free Ammonia (as NH3),mg/l	5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0	0	<0.50	0.00
33	Arsenic (as As),mg/l	<0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
34	Mercury (as Hg),mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0	0	<0.001	0.00
35	Selenium (as Se),mg/l	<0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
36	Nickel (as Ni),mg/l	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	0.00
37	Cyanide (as CN),mg/l	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
38	Sulphides (as S),mg/l	5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.01	0.00
39	Manganese (as Mn),mg/l	2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	0.00
40	Vanadium (as V),mg/l	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
41	Nitrate Nitrogen as N,mg/l	20	1.9	1.9	1.8	1.9	1.5	1.6	1.9	1.5	1.77	0.18
42	Alpha Emitters,Bq/l	3.7	0.52	0.49	0.5	0.48	0.47	0.05	0.52	0.05	0.39	0.18
43	Beta emitters,Bq/l	37	1.18	1.12	1.16	1.13	1.08	1.12	1.18	1.08	1.13	0.03
44	Bio-assay Test#, %	90% survival of fish after 96 hrs in 100% effluent	100	100	100	100	100	100	100	100	100.00	0.00

BDL-Below detection limit, MPN-Most probable number

Alpha Emitter and Beta emitters Samples are tested by HPU,BARC,OSCOM

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TC-11181

Test Report **Issue Date-24/09/2026**

Effluent water test analysis **Report NO.- ITS/IREL-W-02**

Name and address	M/s. IREL (India) Limited, OSCOM, Matikhalo, Chatrapur, Ganjam, Odisha
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024
Sampling Done By	Mr. Suresh Pradhan
Sample Description	Effluent water
Sample Location	(ETP OUT LET)
Sample Quantity	2 Liter
Sampling period	APRIL- 2026 to SEPTEMBER-2026

S.No	Parameter	Permissible norms by CPCB	APRIL	MAY	JUNE	JULY	AUGUST	SEP	Max	Min	Average	SD
1	pH Value @ 25°C	5.5 to 9.0	7.35	7.38	7.55	7.4	7.45	7.56	7.56	7.35	7.45	0.09
2	Temperature	-	18.4	18.8	21.4	20.2	19.2	20.9	21.4	18.4	19.82	1.20
3	Turbidity, NTU	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0	0	<1.0	0.00
4	Colour, Hazen	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	-	218	210	236	200	220	240	240	200	220.67	15.21
6	Total Dissolved Solids,mg/l	-	745	730	686	725	740	675	745	675	716.83	29.23
7	Total Suspended Solids,mg/l	100	15	16	16	14	12	12	16	12	14.17	1.83
8	Oil & Grease,mg/l	20	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	0	0	<3.0	0.00
9	Biochemical Oxygen Demand,mg/l	100	5.8	5.9	5.8	5.8	5.9	5.4	5.9	5.4	5.77	0.19
10	Chemical Oxygen Demand,mg/l	250	22	20	22	18	20	18	22	18	20.00	1.79
11	Dissolved Oxygen,mg/l	-	6.2	6.3	5.9	6.5	6.4	5.2	6.5	5.2	6.08	0.48
12	Chloride as Cl, mg/l	-	78.2	78.1	75.1	82	88	72.2	88	72.2	78.93	5.53
13	Sulphate (as SO4),mg/l	-	36	38	30	40	45	28	45	28	36.17	6.34
14	Fluoride (as F),mg/l	15	0.32	0.34	0.39	0.32	0.34	0.34	0.39	0.32	0.34	0.03
15	Total Hardness (as CaCO3),mg/l	-	210	215	200	210	220	190	220	190	207.50	10.84

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16	Calcium (as Ca),mg/l	-	52	56	48	58	59.2	52	59.2	48	54.20	4.26
17	Magnesium (as Mg),mg/l	-	19.6	18.37	19.6	15.9	17.64	14.7	19.6	14.7	17.64	1.99
18	Sodium (as Na),mg/l	-	52.2	52.4	32.2	48.6	28	30.2	52.4	28	40.60	11.62
19	Potassium (as K),mg/l	-	3.6	3.8	2.8	3.9	3.5	2.2	3.9	2.2	3.30	0.66
20	Total Nitrogen,mg/l	-	1.8	1.9	11.1	1.8	1.9	10.8	11.1	1.8	4.88	4.70
21	Dissolved Phosphate (as P),mg/l	-	0.64	0.68	0.62	0.65	0.68	0.61	0.68	0.61	0.65	0.03
22	Iron (as Fe),mg/l	3	0.62	0.6	0.62	0.58	0.28	0.64	0.64	0.28	0.56	0.14
23	Copper (as Cu),mg/l	3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
24	Cadmium (as Cd),mg/l	2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
25	Lead (as Pb),mg/l	2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
26	Zinc (as Zn),mg/l	15	0.86	0.88	0.92	0.75	0.65	0.95	0.95	0.65	0.84	0.11
27	Total Chromium as Cr,mg/l	2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
28	Hexavalent Chromium (as Cr+6),mg/l	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	0.00
29	Phenolic Compounds ,mg/l	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
30	Total Residual Chlorine,mg/l	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	0.00
31	Total Kjeldhal nitrogen,mg/l	100	6.2	6.4	6.5	6.8	6.2	6.6	6.8	6.2	6.45	0.23
32	Free Ammonia (as NH3),mg/l	5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0	0	<0.50	0.00
33	Arsenic (as As),mg/l	<0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
34	Mercury (as Hg),mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0	0	<0.001	0.00
35	Selenium (as Se),mg/l	<0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
36	Nickel (as Ni),mg/l	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	0.00
37	Cyanide (as CN),mg/l	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
38	Sulphides (as S),mg/l	5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	0.00
39	Manganese (as Mn),mg/l	2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	0.00
40	Vanadium (as V),mg/l	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
41	Nitrate Nitrogen as N,mg/l	20	1.3	1.2	2.1	1.3	1.4	2	2.1	1.2	1.55	0.39
42	Alpha Emitters,Bq/l	3.7	BDL(0.1)	BDL(0.1)	BDL(0.1)	BDL(0.1)	BDL(0.1)	BDL(0.1)	0	0	0.00	0.00
43	Beta emitters,Bq/l	37	BDL(1.0)	BDL(1.0)	BDL(1.0)	BDL(1.0)	BDL(1.0)	BDL(1.0)	0	0	0.00	0.00
44	Bio-assay Test#, %	90% survival of fish	90	100	90	90	90	95	100	90	92.50	4.18

BDL-Below detection limit, MPN-Most probable number

Alpha Emitter and Beta emitters Samples are tested by HPU,BARC,OSCOM

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TC-11181

		Test Report			Issue Date-24/09/2026		
		Soil Analysis			REPORT No.-ITS/IREL-SS-01		
Issued To	M/s. IREL (INDIA) LIMITED, Matikhala, Chatrapur, Ganjam, Odisha						
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024						
Sampling Done By	Mr. Suresh Pradhan						
Sample Location	Badaputi (S-1)						
Sample Description	Soil Sample						
Sample Quantity	1 Kg						
Sample Analysis Duration	APRIL-2026 to SEP-2026						
S.No	Parameters	Jun-26	Sep-26	Max	Min	Ave	SD
1	pH of 10% solution	7.45	7.48	7.48	7.45	7.47	0.02
2	Electrical conductivity of 10% solution , µs/cm	55.1	58.24	58.24	55.1	56.67	2.22
3	Sodium absorption ratio	8.65	8.65	8.65	8.65	8.65	0.00
4	Cation exchange capacity, meq/100g	16	16	16	16	16.00	0.00
5	Sulphates(as SO4)(mg/kg)	680	682	682	680	681.00	1.41
6	Nitrates (as NO3)(mg/kg)	155	154	155	154	154.50	0.71
7	Nitrogen (as N)(mg/kg)	740	750	750	740	745.00	7.07
8	Total Phosphorus(P) (mg/kg)	70	75	75	70	72.50	3.54
9	Calcium(as Ca) (mg/kg)	1920	1940	1940	1920	1930.00	14.14
10	Sodium(as Na) (mg/kg)	270	282	282	270	276.00	8.49
11	Potassium (as K)(mg/kg)	380	398	398	380	389.00	12.73
12	Iron (as Fe)(mg/kg)	270	276	276	270	273.00	4.24
13	Organic Matter , %	0.5	0.54	0.54	0.5	0.52	0.03

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TC-11181

		Test Report			Issue Date-24/09/2026		
		Soil Analysis			REPORT No.-ITS/IREL-SS-02		
Issued To	M/s. IREL (INDIA) LIMITED, Matikhala, Chatrapur, Ganjam, Odisha						
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024						
Sampling Done By	Mr. Suresh Pradhan						
Sample Location	Kanamana Village (S-2)						
Sample Description	Soil Sample						
Sample Quantity	1 Kg						
Sample Analysis Duration	APRIL-2026 to SEP-2026						
S.No	Parameters	Jun-26	Sep-26	Max	Min	Ave	SD
1	pH of 10% solution	6.7	6.75	6.75	6.7	6.73	0.04
2	Electrical conductivity of 10% solution , µs/cm	30.2	34.5	34.5	30.2	32.35	3.04
3	Sodium absorption ratio	8.6	8.72	8.72	8.6	8.66	0.08
4	Cation exchange capacity, meq/100g	18	20	20	18	19.00	1.41
5	Sulphates(as SO4)(mg/kg)	786	790	790	786	788.00	2.83
6	Nitrates (as NO3)(mg/kg)	245	250	250	245	247.50	3.54
7	Nitrogen (as N)(mg/kg)	830	840	840	830	835.00	7.07
8	Total Phosphorus(P) (mg/kg)	90	92	92	90	91.00	1.41
9	Calcium(as Ca) (mg/kg)	2200	2280	2280	2200	2240.00	56.57
10	Sodium(as Na) (mg/kg)	265	260	265	260	262.50	3.54
11	Potassium (as K)(mg/kg)	382	386	386	382	384.00	2.83
12	Iron (as Fe)(mg/kg)	298	270	298	270	284.00	19.80
13	Organic Matter , %	0.52	0.54	0.54	0.52	0.53	0.01

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		Test Report			Issue Date-24/09/2026		
		Soil Analysis			REPORT No.-ITS/IREL-SS-03		
Issued To	M/s. IREL (INDIA) LIMITED, Matikhala, Chatrapur, Ganjam, Odisha						
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024						
Sampling Done By	Mr. Suresh Pradhan						
Sample Location	Matikhalo (S-3)						
Sample Description	Soil Sample						
Sample Quantity	1 Kg						
Sample Analysis Duration	APRIL-2026 to SEP-2026						
S.No	Parameters	Jun-26	Sep-26	Max	Min	Ave	SD
1	pH of 10% solution	6.72	6.74	6.74	6.72	6.73	0.01
2	Electrical conductivity of 10% solution , µs/cm	70.1	70.2	70.2	70.1	70.15	0.07
3	Sodium absorption ratio	9.4	9.6	9.6	9.4	9.50	0.14
4	Cation exchange capacity, meq/100g	20	22	22	20	21.00	1.41
5	Sulphates(as SO4)(mg/kg)	870	865	870	865	867.50	3.54
6	Nitrates (as NO3)(mg/kg)	188	192	192	188	190.00	2.83
7	Nitrogen (as N)(mg/kg)	750	745	750	745	747.50	3.54
8	Total Phosphorus(P) (mg/kg)	660	668	668	660	664.00	5.66
9	Calcium(as Ca) (mg/kg)	2340	2250	2340	2250	2295.00	63.64
10	Sodium(as Na) (mg/kg)	350	358	358	350	354.00	5.66
11	Potassium (as K)(mg/kg)	365	360	365	360	362.50	3.54
12	Iron (as Fe)(mg/kg)	282	280	282	280	281.00	1.41
13	Organic Matter , %	0.66	0.64	0.66	0.64	0.65	0.01

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TC-11181

		Test Report			Issue Date-24/09/2026		
		Soil Analysis			REPORT No.-ITS/IREL-SS-04		
Issued To	M/s. IREL (INDIA) LIMITED, Matikhala, Chatrapur, Ganjam, Odisha						
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024						
Sampling Done By	Mr. Suresh Pradhan						
Sample Location	B.Arjyapalli (S-4),						
Sample Description	Soil Sample						
Sample Quantity	1 Kg						
Sample Analysis Duration	APRIL-2026 to SEP-2026						
S.No	Parameters	Jun-26	Sep-26	Max	Min	Ave	SD
1	pH of 10% solution	7.7	7.76	7.76	7.7	7.73	0.04
2	Electrical conductivity of 10% solution , µs/cm	130.2	130.2	130.2	130.2	130.20	0.00
3	Sodium absorption ratio	9.3	9.1	9.3	9.1	9.20	0.14
4	Cation exchange capacity, meq/100g	22	20	22	20	21.00	1.41
5	Sulphates(as SO4)(mg/kg)	990	994	994	990	992.00	2.83
6	Nitrates (as NO3)(mg/kg)	550	545	550	545	547.50	3.54
7	Nitrogen (as N)(mg/kg)	950	956	956	950	953.00	4.24
8	Total Phosphorus(P) (mg/kg)	140	135	140	135	137.50	3.54
9	Calcium(as Ca) (mg/kg)	2210	2208	2210	2208	2209.00	1.41
10	Sodium(as Na) (mg/kg)	1280	1296	1296	1280	1288.00	11.31
11	Potassium (as K)(mg/kg)	470	478	478	470	474.00	5.66
12	Iron (as Fe)(mg/kg)	440	432	440	432	436.00	5.66
13	Organic Matter , %	0.52	0.54	0.54	0.52	0.53	0.01

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			Test Report			Issue Date-24/09/2026	
			Soil Analysis			REPORT No.-ITS/IREL-SS-05	
Issued To		M/s. IREL (INDIA) LIMITED, Matikhala, Chatrapur, Ganjam, Odisha					
Work Order No.		GEMC 511687709360706/07/SC-11684, Dated-19.11.2024					
Sampling Done By		Mr. Suresh Pradhan					
Sample Location		SodiumNitrate (S-5),					
Sample Description		Soil Sample					
Sample Quantity		1 Kg					
Sample Analysis Duration		APRIL-2026 to SEP-2026					
S.No	Parameters	Jun-26	Sep-26	Max	Min	Ave	SD
1	pH of 10% solution	7.24	7.45	7.45	7.24	7.35	0.15
2	Electrical conductivity of 10% solution , µs/cm	250	258	258	250	254.00	5.66
3	Sodium absorption ratio	9.45	8.86	9.45	8.86	9.16	0.42
4	Cation exchange capacity, meq/100g	21	24	24	21	22.50	2.12
5	Sulphates(as SO4)(mg/kg)	1322	1335	1335	1322	1328.50	9.19
6	Nitrates (as NO3)(mg/kg)	680	692	692	680	686.00	8.49
7	Nitrogen (as N)(mg/kg)	1260	1268	1268	1260	1264.00	5.66
8	Total Phosphorus(P) (mg/kg)	120	124	124	120	122.00	2.83
9	Calcium(as Ca) (mg/kg)	2100	2190	2190	2100	2145.00	63.64
10	Sodium(as Na) (mg/kg)	1248	1252	1252	1248	1250.00	2.83
11	Potassium (as K)(mg/kg)	620	628	628	620	624.00	5.66
12	Iron (as Fe)(mg/kg)	356	355	356	355	355.50	0.71
13	Organic Matter , %	0.64	0.62	0.64	0.62	0.63	0.01

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		Test Report			Issue Date-24/09/2026		
		Soil Analysis			REPORT No.-ITS/IREL-SS-06		
Issued To	M/s. IREL (INDIA) LIMITED, Matikhala, Chatrapur, Ganjam, Odisha						
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024						
Sampling Done By	Mr. Suresh Pradhan						
Sample Location	Near pond pond (S-6)						
Sample Description	Soil Sample						
Sample Quantity	1 Kg						
Sample Analysis Duration	APRIL-2026 to SEP-2026						
S.No	Parameters	Jun-26	Sep-26	Max	Min	Ave	SD
1	pH of 10% solution	8.48	8.32	8.48	8.32	8.40	0.11
2	Electrical conductivity of 10% solution , µs/cm	375	370	375	370	372.50	3.54
3	Sodium absorption ratio	8.6	8.5	8.6	8.5	8.55	0.07
4	Cation exchange capacity, meq/100g	22	20	22	20	21.00	1.41
5	Sulphates(as SO4)(mg/kg)	1410	1418	1418	1410	1414.00	5.66
6	Nitrates (as NO3)(mg/kg)	748	743	748	743	745.50	3.54
7	Nitrogen (as N)(mg/kg)	1440	1410	1440	1410	1425.00	21.21
8	Total Phosphorus(P) (mg/kg)	155	150	155	150	152.50	3.54
9	Calcium(as Ca) (mg/kg)	2000	2060	2060	2000	2030.00	42.43
10	Sodium(as Na) (mg/kg)	1490	1450	1490	1450	1470.00	28.28
11	Potassium (as K)(mg/kg)	845	824	845	824	834.50	14.85
12	Iron (as Fe)(mg/kg)	430	416	430	416	423.00	9.90
13	Organic Matter , %	0.72	0.78	0.78	0.72	0.75	0.04

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Test Report						Issue Date-24/09/2026					
Surface/Ground water analysis						Report NO.- ITS/IREL-WW-01					
Name and address	M/s. IREL (India) Limited, OSCOM,Matikhalo, Chatrapur, Ganjam, Odisha										
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024										
Sampling Done By	Mr. Suresh Pradhan										
Sample Description	Surface/ground water										
Sample Location	SOLID WASTE UP TRANCH-03										
Sample Quantity	2 Liter										
Sampling period	APRIL-2026 to SEPTEMBER-2026										

S.No	Parameter	APRIL	MAY	JUNE	JULY	AUGUST	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.25	7.32	7.44	7.45	7.56	7.65	7.65	7.25	7.45	0.15
2	Temperature	18.3	18.5	21	19.9	19.5	21.9	21.9	18.3	19.85	1.41
3	Turbidity, NTU	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0	0	<1.0	0.00
4	Colour, Hazen	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	245	252	236	250	240	240	252	236	243.83	6.27
6	Total Dissolved Solids,mg/l	740	734	740	728	710	745	745	710	732.83	12.62
7	Total Suspended Solids,mg/l	16	15	10	12	10	12	16	10	12.50	2.51
8	Oil & Grease,mg/l	3.2	3.4	2.2	3.2	3.1	2.3	3.4	2.2	<3.0	0.51
9	Biochemical Oxygen Demand,mg/l	5.6	5.7	5.5	5.8	5.6	5.6	5.8	5.5	5.63	0.10
10	Chemical Oxygen Demand,mg/l	16	18	20	15	14	18	20	14	16.83	2.23
11	Dissolved Oxygen,mg/l	5.9	5.6	5.8	5.8	5.9	5.6	5.9	5.6	5.77	0.14
12	Chloride as Cl, mg/l	98.4	98.5	94	96.2	92.2	96	98.5	92.2	95.88	2.47
13	Sulphate (as SO4),mg/l	76.6	78.2	78	78.4	76.2	82	82	76.2	78.23	2.05
14	Fluoride (as F),mg/l	0.54	0.52	0.52	0.55	0.54	0.54	0.55	0.52	0.54	0.01
15	Total Hardness (as CaCO3),mg/l	260	272	272	276	265	278	278	260	270.50	6.80

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16	Calcium (as Ca),mg/l	60	62.4	76	68	67.2	72	76	60	67.60	5.92
17	Magnesium (as Mg),mg/l	26.9	28.4	20.09	25.97	23.76	21.6	28.4	20.09	24.45	3.21
18	Sodium (as Na),mg/l	42	35	18	30	25	20	42	18	28.33	9.18
19	Potassium (as K),mg/l	13.5	13.6	8.2	13.8	13.2	8.8	13.8	8.2	11.85	2.61
20	Total Nitrogen,mg/l	14.2	14.3	16.2	10.4	10.2	16.4	16.4	10.2	13.62	2.73
21	Dissolved Phosphate (as P),mg/l	0.32	0.34	0.22	0.32	0.31	0.24	0.34	0.22	0.29	0.05
22	Iron (as Fe),mg/l	0.62	0.64	0.66	0.65	0.52	0.64	0.66	0.52	0.62	0.05
23	Copper (as Cu),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.5	0.51	0.54	0.58	0.54	0.56	0.58	0.5	0.54	0.03
27	Total Chromium as Cr,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
28	Cr+6),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
31	Total Kjeldhal nitrogen,mg/l	3	3.1	3.4	3.5	3.5	3.2	3.5	3	3.28	0.21
32	Free Ammonia (as NH3),mg/l	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0	0	<0.50	<0.50
33	Arsenic (as As),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
34	Mercury (as Hg),mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0	0	<0.001	<0.001
35	Selenium (as Se),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
36	Nickel (as Ni),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
37	Cyanide (as CN),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
38	Sulphides (as S),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
39	Manganese (as Mn),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
40	Vanadium (as V),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
41	Nitrate Nitrogen as N,mg/l	2	2.1	1.9	2.6	2.5	1.9	2.6	1.9	2.17	0.31
42	Escherichia coli (MPN/100ml)	10	10	18	10	10	10	18	10	12.00	<2.0
43	Coliform Bacteria (MPN/100ml)	25	20	20	15	25	15	25	15	20.00	<2.0
44	Bio-assay Test#, %	100	100	100	100	100	90	100	90	98.33	4.08

MPN-Most probable number

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TC-11181

Test Report	Issue Date-24/09/2026
Surface /Ground water Analysis	Report NO.- ITS/IREL-WW-02

Name and address	M/s. IREL (India) Limited, OSCOM,Matikhalo, Chatrapur, Ganjam, Odisha
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024
Sampling Done By	Mr. Suresh Pradhan
Sample Description	Surface /Ground water Analysis
Sample Location	SOLID WASTE-DOWN-4
Sample Quantity	2 Liter
Sampling period	APRIL-2026 to SEPTEMBER-2026

S.No	Parameter	APRIL	MAY	JUNE	JULY	AUGUST	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.52	7.42	7.86	7.4	7.45	7.82	7.86	7.4	7.58	0.21
2	Temperature	20.2	19.2	20.2	19.3	19.6	20.4	20.4	19.2	19.82	0.52
3	Turbidity, NTU	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0	0	<1.0	0.00
4	Colour, Hazen	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	252	265	250	260	250	258	265	250	255.83	6.15
6	Total Dissolved Solids,mg/l	770	780	810	760	740	815	815	740	779.17	29.05
7	Total Suspended Solids,mg/l	18	18	12	16	14	13	18	12	15.17	2.56
8	Oil & Grease,mg/l	<1	<1	<1	<1	<1	<1	0	0	<3.0	0.00
9	Biochemical Oxygen Demand,mg/l	5.8	5.4	5.2	5.6	5.4	5.4	5.8	5.2	5.47	0.21
10	Chemical Oxygen Demand,mg/l	18	20	22	18	16	20	22	16	19.00	2.10
11	Dissolved Oxygen,mg/l	5.6	5.8	5.9	5.9	5.8	5.7	5.9	5.6	5.78	0.12
12	Chloride as Cl, mg/l	95.8	95.6	64.1	90.2	96.5	64.5	96.5	64.1	84.45	15.77
13	Sulphate (as SO4),mg/l	88.2	88.1	87.8	88.2	82.2	87.5	88.2	82.2	87.00	2.37
14	Fluoride (as F),mg/l	0.64	0.65	0.61	0.6	0.58	0.62	0.65	0.58	0.62	0.03
15	Total Hardness (as CaCO3),mg/l	290	284	255	280	288	260	290	255	276.17	14.95

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TC-11181

Report NO.- ITS/IREL-WW-02

16	Calcium (as Ca),mg/l	68	68	68	75	72	64	75	64	69.17	3.82
17	Magnesium (as Mg),mg/l	29.4	27.9	20.8	27.2	26.46	24	29.4	20.8	25.96	3.09
18	Sodium (as Na),mg/l	68	38	22	31.85	30	24	68	22	35.64	16.85
19	Potassium (as K),mg/l	15.2	14.1	9.1	14.8	10.2	9.6	15.2	9.1	12.17	2.82
20	Total Nitrogen,mg/l	24.2	22.3	22.4	12.6	12	22.3	24.2	12	19.30	5.47
21	Dissolved Phosphate (as P),mg/l	0.44	0.42	0.25	0.4	0.44	0.22	0.44	0.22	0.36	0.10
22	Iron (as Fe),mg/l	0.73	0.74	0.71	0.78	0.46	0.71	0.78	0.46	0.69	0.11
23	Copper (as Cu),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.82	0.76	0.72	0.74	0.65	0.75	0.82	0.65	0.74	0.06
27	Total Chromium as Cr,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
31	Total Kjeldhal nitrogen,mg/l	4.1	4.2	4.2	4.8	4.8	4.6	4.8	4.1	4.45	0.32
32	Free Ammonia (as NH3),mg/l	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0	0	<0.50	<0.50
33	Arsenic (as As),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
34	Mercury (as Hg),mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0	0	<0.001	<0.001
35	Selenium (as Se),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
36	Nickel (as Ni),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
37	Cyanide (as CN),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
38	Sulphides (as S),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.01	<0.1
39	Manganese (as Mn),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
40	Vanadium (as V),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
41	Nitrate Nitrogen as N,mg/l	2.12	2.21	2.4	2.5	2.6	2.8	2.8	2.12	2.44	0.25
42	Escherichia coli (MPN/100ml)	10	10	22	15	10	10	22	10	13.63	4.92
43	Coliform Bacteria (MPN/100ml)	20	15	20	20	20	15	20	15	18.13	2.58
44	Bio-assay Test#, %	95	100	100	95	90	100	100	90	96.67	4.08
	MPN-Most probable number										

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TC-11181

Test Report	Issue Date-24/09/2026
Surface /Ground water Analysis	Report NO.- ITS/IREL-WW-03

Name and address	M/s. IREL (India) Limited, OSCOM,Matikhalo, Chatrapur, Ganjam, Odisha
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024
Sampling Done By	Mr. Suresh Pradhan
Sample Description	Surface /Ground water Analysis
Sample Location	COMPOSITE WATER MSP-5
Sample Quantity	2 Liter
Sampling period	APRIL-2026 to SEPTEMBER-2026

S.No	Parameter	APRIL	MAY	JUNE	JULY	AUGUST	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.24	7.32	7.21	7.32	7.38	7.35	7.38	7.21	7.30	0.07
2	Temperature	18.5	18.4	21.2	19.8	19.2	21.7	21.7	18.4	19.80	1.38
3	Turbidity, NTU	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0	0	<1.0	0.00
4	Colour, Hazen	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	165	175	160	170	180	172	180	160	170.33	7.12
6	Total Dissolved Solids,mg/l	700	680	710	645	670	722	722	645	687.83	28.36
7	Total Suspended Solids,mg/l	24	22	12	16	18	10	24	10	17.00	5.48
8	Oil & Grease,mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0	0	<3.0	0.00
9	Biochemical Oxygen Demand,mg/l	4.5	4.6	3.8	4.8	5.2	3.9	5.2	3.8	4.47	0.54
10	Chemical Oxygen Demand,mg/l	16	18	20	20	18	18	20	16	18.33	1.51
11	Dissolved Oxygen,mg/l	5.8	5.9	5.4	5.5	5.5	5.2	5.9	5.2	5.55	0.26
12	Chloride as Cl, mg/l	85.6	78.3	80.1	77.5	80.2	80.4	85.6	77.5	80.35	2.83
13	Sulphate (as SO4),mg/l	42	41	35	38	40	36	42	35	38.67	2.80
14	Fluoride (as F),mg/l	0.32	0.31	0.32	0.32	0.31	0.34	0.34	0.31	0.32	0.01
15	Total Hardness (as CaCO3),mg/l	266	260	265	260	244	270	270	244	260.83	9.09

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16	Calcium (as Ca),mg/l	72	70	65.6	66	64	72	72	64	68.27	3.50
17	Magnesium (as Mg),mg/l	21	20.8	24.74	23.27	20.58	21.6	24.74	20.58	22.00	1.66
18	Sodium (as Na),mg/l	40	42	45	32	25	35	45	25	36.50	7.34
19	Potassium (as K),mg/l	16	18	12	12	8.2	14	18	8.2	13.37	3.44
20	Total Nitrogen,mg/l	12.2	12.8	12.1	12.2	12.1	12.2	12.8	12.1	12.27	0.27
21	Dissolved Phosphate (as P),mg/l	0.54	0.52	0.52	0.5	0.42	0.54	0.54	0.42	0.51	0.05
22	Iron (as Fe),mg/l	0.7	0.71	0.64	0.7	0.56	0.62	0.71	0.56	0.66	0.06
23	Copper (as Cu),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.6	0.65	0.72	0.65	0.72	0.7	0.72	0.6	0.67	0.05
27	Total Chromium as Cr,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
28	Cr+6),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
31	Total Kjeldhal nitrogen,mg/l	7.2	7.5	7.4	7.5	7.6	7.5	7.6	7.2	7.45	0.14
32	Free Ammonia (as NH3),mg/l	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0	0	<0.50	<0.50
33	Arsenic (as As),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
34	Mercury (as Hg),mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0	0	<0.001	<0.001
35	Selenium (as Se),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
36	Nickel (as Ni),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
37	Cyanide (as CN),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
38	Sulphides (as S),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
39	Manganese (as Mn),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
40	Vanadium (as V),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
41	Nitrate Nitrogen as N,mg/l	3.4	3.6	3.2	3.6	3.6	3.5	3.6	3.2	3.48	0.16
42	Escherichia coli (MPN/100ml)	15	10	15	10	10	15	15	10	12.50	<2.0
43	Coliform Bacteria (MPN/100ml)	20	20	20	20	15	20	20	15	18.75	<2.0
44	Bio-assay Test#, %	100	100	100	100	100	100	100	100	100.00	0.00

MPN-Most probable number

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TC-11181

Test Report — Issue Date-24/09/2026

Surface /Ground water Analysis — Report NO.- ITS/IREL-WW-04

Name and address	M/s. IREL (India) Limited, OSCOM,Matikhalo, Chatrapur, Ganjam, Odisha
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024
Sampling Done By	Mr. Suresh Pradhan
Sample Description	Surface /Ground water Analysis
Sample Location	SOLAR EVAPORATION UP-06
Sample Quantity	2 Liter
Sampling period	APRIL-2026 to SEPTEMBER-2026

S.No	Parameter	APRIL	MAY	JUNE	JULY	AUGUST	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.66	7.58	7.52	7.5	7.44	7.58	7.66	7.44	7.55	0.08
2	Temperature	18.2	18.4	21.4	18.2	18.6	21.2	21.4	18.2	19.33	1.53
3	Turbidity, NTU	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0	0	<1.0	0.00
4	Colour, Hazen	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	188	192	180	190	198	170	198	170	186.33	9.91
6	Total Dissolved Solids,mg/l	830	810	835	800	790	825	835	790	815.00	17.89
7	Total Suspended Solids,mg/l	20	22	15	20	20	12	22	12	18.17	3.82
8	Oil & Grease,mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0	0	<3.0	0.00
9	Biochemical Oxygen Demand,mg/l	6.5	6.8	6.1	6.6	6.6	6	6.8	6	6.43	0.31
10	Chemical Oxygen Demand,mg/l	20	22	24	20	22	22	24	20	21.67	1.51
11	Dissolved Oxygen,mg/l	6	6.2	5.6	6.4	6.5	5.2	6.5	5.2	5.98	0.50
12	Chloride as Cl, mg/l	92	97	90	88	90	92	97	88	91.50	3.08
13	Sulphate (as SO4),mg/l	54	58	60	45	46	58	60	45	53.50	6.50
14	Fluoride (as F),mg/l	0.42	0.41	0.45	0.45	0.33	0.42	0.45	0.33	0.41	0.04
15	Total Hardness (as CaCO3),mg/l	280	290	290	278	270	295	295	270	283.83	9.39

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16	Calcium (as Ca),mg/l	66	65.6	84	72	75.2	74	84	65.6	72.80	6.80
17	Magnesium (as Mg),mg/l	26.9	30.87	17.1	24.01	20.09	26.95	30.87	17.1	24.32	5.03
18	Sodium (as Na),mg/l	60	46	72	35	30	50	72	30	48.83	15.60
19	Potassium (as K),mg/l	22	20	18	15	11	16	22	11	17.00	3.90
20	Total Nitrogen,mg/l	19.2	19.1	18.2	15.2	14.6	18.6	19.2	14.6	17.48	2.04
21	Dissolved Phosphate (as P),mg/l	0.53	0.52	0.54	0.48	0.45	0.62	0.62	0.45	0.52	0.06
22	Iron (as Fe),mg/l	0.78	0.74	0.82	0.72	0.62	0.82	0.82	0.62	0.75	0.08
23	Copper (as Cu),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
24	Cadmium (as Cd),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
25	Lead (as Pb),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
26	Zinc (as Zn),mg/l	0.84	0.88	0.8	0.85	0.86	0.82	0.88	0.8	0.84	0.03
27	Total Chromium as Cr,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	0.00
29	Phenolic Compounds ,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
30	Total Residual Chlorine,mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	0.00
31	Total Kjeldhal nitrogen,mg/l	8.5	8.6	9.4	8.2	8.8	9.8	9.8	8.2	8.88	0.60
32	Free Ammonia (as NH3),mg/l	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0	0	<0.50	0.00
33	Arsenic (as As),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
34	Mercury (as Hg),mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0	0	<0.001	0.00
35	Selenium (as Se),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
36	Nickel (as Ni),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	0.00
37	Cyanide (as CN),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
38	Sulphides (as S),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	0.00
39	Manganese (as Mn),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	0.00
40	Vanadium (as V),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	0.00
41	Nitrate Nitrogen as N,mg/l	3.3	3.2	3.2	3.5	3.7	3.8	3.8	3.2	3.45	0.26
42	Escherichia coli (MPN/100ml)	15	15	10	10	10	20	15	10	13.13	4.08
43	Coliform Bacteria (MPN/100ml)	20	15	20	20	20	25	20	15	19.38	3.16
44	Bio-assay Test#, %	90	100	100	90	90	100	100	90	95.00	5.48

MPN-Most probable number

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TC-11181

Test Report	Issue Date-24/09/2026
Surface /Ground water Analysis	Report NO.- ITS/IREL-WW-05

Name and address	M/s. IREL (India) Limited, OSCOM,Matikhalo, Chatrapur, Ganjam, Odisha
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024
Sampling Done By	Mr. Suresh Pradhan
Sample Description	Surface /Ground water Analysis
Sample Location	SOLAR EVAPORATION DOWN-07
Sample Quantity	2 Liter
Sampling period	APRIL-2026 to SEPTEMBER-2026

S.No	Parameter	APRIL	MAY	JUNE	JULY	AUGUST	SEP	Max	Min	Average	SD
1	pH Value @ 25°C	7.3	7.32	7.45	7.38	7.45	7.5	7.5	7.3	7.40	0.08
2	Temperature	21.4	20.5	18.26	20.2	20	18.8	21.4	18.26	19.86	1.15
3	Turbidity, NTU	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0	0	<1.0	0.00
4	Colour, Hazen	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	230	235	215	230	240	220	240	215	228.33	9.31
6	Total Dissolved Solids,mg/l	560	545	520	540	555	535	560	520	542.50	14.40
7	Total Suspended Solids,mg/l	20	18	20	18	16	18	20	16	18.33	1.51
8	Oil & Grease,mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0	0	<3.0	0.00
9	Biochemical Oxygen Demand,mg/l	4.9	4.8	5.2	4.5	4.9	5.4	5.4	4.5	4.95	0.31
10	Chemical Oxygen Demand,mg/l	20	20	20	18	20	18	20	18	19.33	1.03
11	Dissolved Oxygen,mg/l	5.9	5.8	5.8	5.5	5.6	5.6	5.9	5.5	5.70	0.15
12	Chloride as Cl, mg/l	78	74	66.5	78	82	70.2	82	66.5	74.78	5.71
13	Sulphate (as SO4),mg/l	60	62	55	65	60	56	65	55	59.67	3.72
14	Fluoride (as F),mg/l	0.38	0.36	0.46	0.32	0.31	0.48	0.48	0.31	0.39	0.07
15	Total Hardness (as CaCO3),mg/l	190	195	190	190	196	198	198	190	193.17	3.60

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16	Calcium (as Ca),mg/l	44	48	50	44	52	56.8	56.8	44	49.13	4.93
17	Magnesium (as Mg),mg/l	17.1	18.3	18.3	19.6	15.84	13.72	19.6	13.72	17.14	2.10
18	Sodium (as Na),mg/l	30	28	45	25	26	34	45	25	31.33	7.42
19	Potassium (as K),mg/l	16	16	12	12	10	10	16	10	12.67	2.73
20	Total Nitrogen,mg/l	12.4	12.2	11.36	12.5	10.2	9.8	12.5	9.8	11.41	1.17
21	Dissolved Phosphate (as P),mg/l	0.13	0.12	0.15	0.15	0.16	0.16	0.16	0.12	0.15	0.02
22	Iron (as Fe),mg/l	0.34	0.33	0.3	0.3	0.28	0.32	0.34	0.28	0.31	0.02
23	Copper (as Cu),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.03	<0.03
24	Cadmium (as Cd),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.86	0.84	0.91	0.8	0.85	0.94	0.94	0.8	0.87	0.05
27	Total Chromium as Cr,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
31	Total Kjeldhal nitrogen,mg/l	6.5	6.2	6.1	6	6.4	6	6.5	6	6.20	0.21
32	Free Ammonia (as NH3),mg/l	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0	0	<0.50	<0.50
33	Arsenic (as As),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
34	Mercury (as Hg),mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0	0	<0.001	<0.001
35	Selenium (as Se),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
36	Nickel (as Ni),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
37	Cyanide (as CN),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
38	Sulphides (as S),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
39	Manganese (as Mn),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
40	Vanadium (as V),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
41	Nitrate Nitrogen as N,mg/l	3.2	3.4	3.2	3.5	3.6	3.6	3.6	3.2	3.42	0.18
42	Escherichia coli (MPN/100ml)	10	10	15	15	15	15	15	10	13.13	<2.0
43	Coliform Bacteria (MPN/100ml)	20	20	20	30	20	20	30	20	22.50	<2.0
44	Bio-assay Test#, %	95	100	100	100	90	100	100	90	97.50	4.18

MPN-Most probable number

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TC-11181

Test Report — Issue Date-24/09/2026

Surface /Ground water Analysis — Report NO.- ITS/IREL-WW-06

Name and address	M/s. IREL (India) Limited, OSCOM,Matikhalo, Chatrapur, Ganjam, Odisha
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024
Sampling Done By	Mr. Suresh Pradhan
Sample Description	Surface /Ground water Analysis
Sample Location	REEP UP-8
Sample Quantity	2 Liter
Sampling period	APRIL-2026 to SEPTEMBER-2026

S.No	Parameter	APRIL	MAY	JUNE	JULY	AUGUST	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.25	7.41	7.52	7.42	7.48	7.62	7.62	7.25	7.45	0.12
2	Temperature	20.2	20.1	19.5	20.1	19.8	19.6	20.2	19.5	19.88	0.29
3	Turbidity, NTU	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0	0	<1.0	0.00
4	Colour, Hazen	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	264	270	220	260	240	235	270	220	248.17	19.50
6	Total Dissolved Solids,mg/l	780	765	750	760	750	765	780	750	761.67	11.25
7	Total Suspended Solids,mg/l	25	26	18	24	20	20	26	18	22.17	3.25
8	Oil & Grease,mg/l	2.3	2.4	2.4	2.2	2.1	2.6	2.6	2.1	<3.0	0.18
9	Biochemical Oxygen Demand,mg/l	6.5	6.6	6.1	6.6	6.5	6.2	6.6	6.1	6.42	0.21
10	Chemical Oxygen Demand,mg/l	22	24	22	20	18	20	24	18	21.00	2.10
11	Dissolved Oxygen,mg/l	6	6.2	5.9	6.1	6	5.9	6.2	5.9	6.02	0.12
12	Chloride as Cl, mg/l	86.6	86.7	88.7	78.5	78.2	88.4	88.7	78.2	84.52	4.85
13	Sulphate (as SO4),mg/l	74	76	56	74	72	58	76	56	68.33	8.89
14	Fluoride (as F),mg/l	0.45	0.42	0.46	0.38	0.35	0.52	0.52	0.35	0.43	0.06
15	Total Hardness (as CaCO3),mg/l	230	220	290	210	200	220	290	200	228.33	31.89

MPN-Most probable number

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16	Calcium (as Ca),mg/l	56	56	74.4	60	56	52	74.4	52	59.07	7.93
17	Magnesium (as Mg),mg/l	22	19.6	25.4	14.7	14.4	15.9	25.4	14.4	18.67	4.45
18	Sodium (as Na),mg/l	64	48	52	35	30	54	64	30	47.17	12.62
19	Potassium (as K),mg/l	20	20	15	16	12	12	20	12	15.83	3.60
20	Total Nitrogen,mg/l	27.2	27.5	20.2	20.2	16.4	20.5	27.5	16.4	22.00	4.41
21	Dissolved Phosphate (as P),mg/l	0.35	0.38	0.2	0.4	0.28	0.24	0.4	0.2	0.31	0.08
22	Iron (as Fe),mg/l	0.72	0.71	0.6	0.72	0.43	0.65	0.72	0.43	0.64	0.11
23	Copper (as Cu),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.92	0.95	0.92	0.94	0.92	0.92	0.95	0.92	0.93	0.01
27	Total Chromium as Cr,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
31	Total Kjeldhal nitrogen,mg/l	12.2	12.4	10.2	12.2	12.4	10.4	12.4	10.2	11.63	1.04
32	Free Ammonia (as NH3),mg/l	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0	0	<0.50	<0.50
33	Arsenic (as As),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
34	Mercury (as Hg),mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0	0	<0.001	<0.001
35	Selenium (as Se),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
36	Nickel (as Ni),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
37	Cyanide (as CN),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
38	Sulphides (as S),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
39	Manganese (as Mn),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
40	Vanadium (as V),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
41	Nitrate Nitrogen as N,mg/l	6.4	6.6	6.1	6.5	6.6	6.5	6.6	6.1	6.45	0.19
42	Escherichia coli (MPN/100ml)	10	10	15	15	15	20	15	10	13.75	<2.0
43	Coliform Bacteria (MPN/100ml)	20	20	20	20	20	25	20	20	20.63	<2.0
44	Bio-assay Test#, %	100	100	100	90	95	100	100	90	97.50	4.18

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TC-11181

Test Report — Issue Date-24/09/2026

Surface /Ground water Analysis — Report NO.- ITS/IREL-WW-07

Name and address	M/s. IREL (India) Limited, OSCOM,Matikhalo, Chatrapur, Ganjam, Odisha
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024
Sampling Done By	Mr. Suresh Pradhan
Sample Description	Surface /Ground water Analysis
Sample Location	REEP DOWN-9
Sample Quantity	2 Liter
Sampling period	APRIL-2026 to SEPTEMBER-2026

S.No	Parameter	APRIL	MAY	JUNE	JULY	AUGUST	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.5	7.45	7.52	7.48	7.56	7.65	7.65	7.45	7.53	0.07
2	Temperature	21.1	21	21.6	20.8	20.2	20.4	21.6	20.2	20.85	0.50
3	Turbidity, NTU	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0	0	<1.0	0.00
4	Colour, Hazen	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	220	22	270	20	200	286	286	20	169.67	119.38
6	Total Dissolved Solids,mg/l	730	725	740	730	740	750	750	725	735.83	9.17
7	Total Suspended Solids,mg/l	18	18	15	16	18	16	18	15	16.83	1.33
8	Oil & Grease,mg/l	2.5	2.2	2.8	2.4	2.2	2.1	2.8	2.1	<3.0	0.26
9	Biochemical Oxygen Demand,mg/l	5.9	5.8	5.6	5.9	5.7	5.5	5.9	5.5	5.73	0.16
10	Chemical Oxygen Demand,mg/l	20	24	25	22	18	22	25	18	21.83	2.56
11	Dissolved Oxygen,mg/l	6.8	6.7	6.4	6.5	6.4	6.4	6.8	6.4	6.53	0.18
12	Chloride as Cl, mg/l	82.1	79.2	75	79.1	82.2	80	82.2	75	79.60	2.64
13	Sulphate (as SO4),mg/l	48	52	44	45	52	46	52	44	47.83	3.49
14	Fluoride (as F),mg/l	0.42	0.41	0.4	0.38	0.36	0.42	0.42	0.36	0.40	0.02
15	Total Hardness (as CaCO3),mg/l	255	260	260	250	260	270	270	250	259.17	6.65

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16	Calcium (as Ca),mg/l	64.8	64.4	63.2	68	68.4	65.6	68.4	63.2	65.73	2.07
17	Magnesium (as Mg),mg/l	22.7	24.2	24.99	19.6	21.8	25.97	25.97	19.6	23.21	2.33
18	Sodium (as Na),mg/l	45	52	75.2	38	30	75.4	75.4	30	52.60	19.04
19	Potassium (as K),mg/l	34	38	18.2	20	16	18.3	38	16	24.08	9.40
20	Total Nitrogen,mg/l	16.5	16.2	17.4	16.5	16.4	14.2	17.4	14.2	16.20	1.06
21	Dissolved Phosphate (as P),mg/l	0.24	0.22	0.24	0.24	0.22	0.32	0.32	0.22	0.25	0.04
22	Iron (as Fe),mg/l	0.43	0.42	0.4	0.4	0.35	0.4	0.43	0.35	0.40	0.03
23	Copper (as Cu),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.71	0.72	0.58	0.7	0.78	0.52	0.78	0.52	0.67	0.10
27	Total Chromium as Cr,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
31	Total Kjeldhal nitrogen,mg/l	7.2	7.4	7.1	7.8	7.9	7.2	7.9	7.1	7.43	0.34
32	Free Ammonia (as NH3),mg/l	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0	0	<0.50	<0.50
33	Arsenic (as As),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
34	Mercury (as Hg),mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0	0	<0.001	<0.001
35	Selenium (as Se),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
36	Nickel (as Ni),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
37	Cyanide (as CN),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
38	Sulphides (as S),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
39	Manganese (as Mn),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
40	Vanadium (as V),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
41	Nitrate Nitrogen as N,mg/l	5.5	5.6	5.5	5.8	5.2	4.5	5.8	4.5	5.35	0.46
42	Escherichia coli (MPN/100ml)	10	10	10	10	10	10	10	10	10.00	0.00
43	Coliform Bacteria (MPN/100ml)	15	15	20	15	15	20	20	15	16.88	2.58
44	Bio-assay Test#, %	100	100	100	100	95	100	100	95	99.17	2.04

MPN-Most probable number

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TC-11181

Test Report — Issue Date-24/09/2026

Surface /Ground water Analysis — Report NO.- ITS/IREL-WW-08

Name and address	M/s. IREL (India) Limited, OSCOM,Matikhalo, Chatrapur, Ganjam, Odisha
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024
Sampling Done By	Mr. Suresh Pradhan
Sample Description	Surface /Ground water Analysis
Sample Location	RAILWAY Platform -10
Sample Quantity	2 Liter
Sampling period	APRIL-2026 to SEPTEMBER-2026

S.No	Parameter	APRIL	MAY	JUNE	JULY	AUGUST	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.3	7.3	7.11	7.32	7.42	7.24	7.42	7.11	7.28	0.10
2	Temperature	21.6	21.6	20.4	21.6	21.1	20	21.6	20	21.05	0.70
3	Turbidity, NTU	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0	0	<1.0	0.00
4	Colour, Hazen	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	230	230	230	238	240	245	245	230	235.50	6.44
6	Total Dissolved Solids,mg/l	750	750	720	755	760	730	760	720	744.17	15.63
7	Total Suspended Solids,mg/l	15	15	16	20	22	14	22	14	17.00	3.22
8	Oil & Grease,mg/l	<1	<1	<1	<1	<1	<1	0	0	<3.0	0.00
9	Biochemical Oxygen Demand,mg/l	5.8	5.8	3.5	5.5	5.8	3.4	5.8	3.4	4.97	1.18
10	Chemical Oxygen Demand,mg/l	18	18	28	19	20	24	28	18	21.17	4.02
11	Dissolved Oxygen,mg/l	6.9	6.9	6.6	6.6	6.6	6.6	6.9	6.6	6.70	0.15
12	Chloride as Cl, mg/l	84.1	84.1	78	82.2	88	72	88	72	81.40	5.63
13	Sulphate (as SO4),mg/l	65	62	68	58	60	54	68	54	61.17	5.00
14	Fluoride (as F),mg/l	0.35	0.33	0.32	0.34	0.38	0.3	0.38	0.3	0.34	0.03
15	Total Hardness (as CaCO3),mg/l	260	272	240	265	280	230	280	230	257.83	19.19

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TC-11181

16	Calcium (as Ca),mg/l	55.2	70	68	60	75.6	58.4	75.6	55.2	64.53	7.87
17	Magnesium (as Mg),mg/l	29.8	23.2	17.1	25.7	22.29	20.58	29.8	17.1	23.11	4.35
18	Sodium (as Na),mg/l	72	58	75.4	42	32	65	75.4	32	57.40	17.19
19	Potassium (as K),mg/l	31	30	20.4	18	14	21.2	31	14	22.43	6.74
20	Total Nitrogen,mg/l	13.4	13.3	12.5	13.2	13	12.4	13.4	12.4	12.97	0.42
21	Dissolved Phosphate (as P),mg/l	0.65	0.62	0.62	0.6	0.68	0.3	0.68	0.3	0.58	0.14
22	Iron (as Fe),mg/l	0.42	0.44	0.4	0.42	0.44	0.35	0.44	0.35	0.41	0.03
23	Copper (as Cu),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.63	0.64	0.62	0.6	0.6	0.48	0.64	0.48	0.60	0.06
27	Total Chromium as Cr,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
31	Total Kjeldhal nitrogen,mg/l	7.4	7.5	7.2	7.6	8.1	6.8	8.1	6.8	7.43	0.43
32	Free Ammonia (as NH3),mg/l	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0	0	<0.50	<0.50
33	Arsenic (as As),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
34	Mercury (as Hg),mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0	0	<0.001	<0.001
35	Selenium (as Se),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
36	Nickel (as Ni),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
37	Cyanide (as CN),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
38	Sulphides (as S),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
39	Manganese (as Mn),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
40	Vanadium (as V),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
41	Nitrate Nitrogen as N,mg/l	6.8	6.7	5.4	6.2	6.4	3.8	6.8	3.8	5.88	1.14
42	Escherichia coli (MPN/100ml)	10	10	15	15	10	15	15	10	12.50	2.74
43	Coliform Bacteria (MPN/100ml)	15	15	20	20	15	25	20	15	18.13	4.08
44	Bio-assay Test#, %	100	100	90	95	100	100	100	90	97.50	4.18

MPN-Most probable number

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TC-11181

Test Report — Issue Date-24/09/2026

Surface /Ground water Analysis — Report NO.- ITS/IREL-WW-09

Name and address	M/s. IREL (India) Limited, OSCOM,Matikhalo, Chatrapur, Ganjam, Odisha
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024
Sampling Done By	Mr. Suresh Pradhan
Sample Description	Surface /Ground water Analysis
Sample Location	PHED WATER-11
Sample Quantity	2 Liter
Sampling period	APRIL-2026 to SEPTEMBER-2026

S.No	Parameter	APRIL	MAY	JUNE	JULY	AUGUST	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.32	7.38	7.42	7.35	7.48	7.5	7.5	7.32	7.41	0.07
2	Temperature	20.5	20.2	20.5	20.1	19.5	20.1	20.5	19.5	20.15	0.37
3	Turbidity, NTU	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0	0	<1.0	0.00
4	Colour, Hazen	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	155	162	190	160	140	200	200	140	167.83	22.63
6	Total Dissolved Solids,mg/l	420	430	482	420	400	460	482	400	435.33	30.11
7	Total Suspended Solids,mg/l	12	10	16	12	10	15	16	10	12.50	2.51
8	Oil & Grease,mg/l	<1	<1	<1	<1	<1	<1	0	0	<3.0	0.00
9	Biochemical Oxygen Demand,mg/l	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	0	0	<2.0	0.00
10	Chemical Oxygen Demand,mg/l	18	20	16	18	16	10	20	10	16.33	3.44
11	Dissolved Oxygen,mg/l	6.7	6.6	6.6	6.4	6.6	6.5	6.7	6.4	6.57	0.10
12	Chloride as Cl, mg/l	64	68	35	66	72	32	72	32	56.17	17.78
13	Sulphate (as SO4),mg/l	32	30	28	32	34	24	34	24	30.00	3.58
14	Fluoride (as F),mg/l	0.15	0.16	0.18	0.18	0.19	0.16	0.19	0.15	0.17	0.02
15	Total Hardness (as CaCO3),mg/l	160	168	175	170	160	192	192	160	170.83	11.91

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16	Calcium (as Ca),mg/l	40	48.4	48.4	48	46	48.4	48.4	40	46.53	3.33
17	Magnesium (as Mg),mg/l	14.7	11.5	13.23	12.25	11.02	13.2	14.7	11.02	12.65	1.34
18	Sodium (as Na),mg/l	25	28	17.4	24	20	17.39	28	17.39	21.97	4.37
19	Potassium (as K),mg/l	10	12	14.5	10	8.4	14	14.5	8.4	11.48	2.43
20	Total Nitrogen,mg/l	52.1	5.3	18.4	5.2	5.4	12.5	52.1	5.2	16.48	18.24
21	Dissolved Phosphate (as P),mg/l	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0	0	<0.03	0.00
22	Iron (as Fe),mg/l	0.22	0.22	0.25	0.21	0.22	0.26	0.26	0.21	0.23	0.02
23	Copper (as Cu),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.74	0.74	0.72	0.78	0.78	0.74	0.78	0.72	0.75	0.02
27	Total Chromium as Cr,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
31	Total Kjeldhal nitrogen,mg/l	2.2	2.4	2.6	2.4	2.2	2.8	2.8	2.2	2.43	0.23
32	Free Ammonia (as NH3),mg/l	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0	0	<0.50	<0.50
33	Arsenic (as As),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
34	Mercury (as Hg),mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0	0	<0.001	<0.001
35	Selenium (as Se),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
36	Nickel (as Ni),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
37	Cyanide (as CN),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
38	Sulphides (as S),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
39	Manganese (as Mn),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
40	Vanadium (as V),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
41	Nitrate Nitrogen as N,mg/l	1.5	1.6	1.8	1.5	1.8	1.9	1.9	1.5	1.68	0.17
42	Escherichia coli (MPN/100ml)	10	10	15	10	10	15	15	10	11.88	2.58
43	Coliform Bacteria (MPN/100ml)	15	10	20	15	15	25	20	10	16.25	5.16
44	Bio-assay Test#, %	100	90	100	90	100	100	100	90	96.67	5.16

MPN-Most probable number

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TC-11181

Test Report — Issue Date-24/09/2026

Surface /Ground water Analysis — Report NO.- ITS/IREL-WW-10

Name and address	M/s. IREL (India) Limited, OSCOM,Matikhalo, Chatrapur, Ganjam, Odisha
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024
Sampling Done By	Mr. Suresh Pradhan
Sample Description	Surface /Ground water Analysis
Sample Location	MATIKHALO BOREWELL WATER-12
Sample Quantity	2 Liter
Sampling period	APRIL-2026 to SEPTEMBER-2026

S.No	Parameter	APRIL	MAY	JUNE	JULY	AUGUST	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	6.45	6.42	7.35	6.48	7.18	7.45	7.45	6.42	6.89	0.49
2	Temperature	20.2	20.1	21.6	20.2	20	21.4	21.6	20	20.58	0.72
3	Turbidity, NTU	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0	0	<1.0	0.00
4	Colour, Hazen	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	232	234	235	240	230	230	240	230	233.50	3.78
6	Total Dissolved Solids,mg/l	740	750	790	755	740	772	790	740	757.83	19.70
7	Total Suspended Solids,mg/l	42	46	24	47	20	20	47	20	33.17	13.15
8	Oil & Grease,mg/l	<1	<1	<1	<1	<1	<1	0	0	<3.0	0.00
9	Biochemical Oxygen Demand,mg/l	2.1	2.2	2.6	2.4	2.4	2.4	2.6	2.1	2.35	0.18
10	Chemical Oxygen Demand,mg/l	35	30	20	35	37	20	37	20	29.50	7.71
11	Dissolved Oxygen,mg/l	6.4	6.8	6.9	6.7	6.7	6.5	6.9	6.4	6.67	0.19
12	Chloride as Cl, mg/l	75	70	65	75	74	60	75	60	69.83	6.18
13	Sulphate (as SO4),mg/l	40	44	40	45	42	42	45	40	42.17	2.04
14	Fluoride (as F),mg/l	0.36	0.38	0.39	0.36	0.35	0.3	0.39	0.3	0.36	0.03
15	Total Hardness (as CaCO3),mg/l	190	190	196	198	210	200	210	190	197.33	7.45

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16	Calcium (as Ca),mg/l	52.8	52.8	44	52	56.8	52	56.8	44	51.73	4.19
17	Magnesium (as Mg),mg/l	14.2	12.7	21.07	16.6	16.66	17.15	21.07	12.7	16.40	2.86
18	Sodium (as Na),mg/l	40	45	48.8	48	36	30	48.8	30	41.30	7.38
19	Potassium (as K),mg/l	12	15	14.7	12	10	18	18	10	13.62	2.85
20	Total Nitrogen,mg/l	5.6	5.5	10.7	5.6	5.6	10.9	10.9	5.5	7.32	2.70
21	Dissolved Phosphate (as P),mg/l	0.4	0.42	0.42	0.44	0.46	0.48	0.48	0.4	0.44	0.03
22	Iron (as Fe),mg/l	0.25	0.2	0.21	0.22	0.24	0.23	0.25	0.2	0.23	0.02
23	Copper (as Cu),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.75	0.76	0.62	0.74	0.74	0.65	0.76	0.62	0.71	0.06
27	Total Chromium as Cr,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
31	Total Kjeldhal nitrogen,mg/l	2.6	2.5	2.4	2.3	2.5	2.5	2.6	2.3	2.47	0.10
32	Free Ammonia (as NH3),mg/l	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0	0	<0.50	<0.50
33	Arsenic (as As),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
34	Mercury (as Hg),mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0	0	<0.001	<0.001
35	Selenium (as Se),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
36	Nickel (as Ni),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
37	Cyanide (as CN),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
38	Sulphides (as S),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
39	Manganese (as Mn),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
40	Vanadium (as V),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
41	Nitrate Nitrogen as N,mg/l	1.6	1.8	1.4	1.9	2	1.6	2	1.4	1.72	0.22
42	Escherichia coli (MPN/100ml)	10	10	15	10	10	15	15	10	11.88	2.58
43	Coliform Bacteria (MPN/100ml)	15	10	20	20	15	25	20	10	16.88	5.24
44	Bio-assay Test#, %	95	100	100	100	95	100	100	95	98.33	2.58

MPN-Most probable number

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TC-11181

Test Report	Issue Date-24/09/2026
Surface /Ground water Analysis	Report NO.- ITS/IREL-WW-11

Name and address	M/s. IREL (India) Limited, OSCOM,Matikhalo, Chatrapur, Ganjam, Odisha
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024
Sampling Done By	Mr. Suresh Pradhan
Sample Description	Surface /Ground water Analysis
Sample Location	LILI POND
Sample Quantity	2 Liter
Sampling period	APRIL-2026 to SEPTEMBER-2026

S.No	Parameter	APRIL	MAY	JUNE	JULY	AUGUST	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.55	7.39	7.65	7.56	7.62	7.68	7.68	7.39	7.58	0.10
2	Temperature	20	20.1	21.4	19.2	19.6	21.2	21.4	19.2	20.25	0.88
3	Turbidity, NTU	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0	0	<1.0	0.00
4	Colour, Hazen	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	270	275	270	270	280	255	280	255	270.00	8.37
6	Total Dissolved Solids,mg/l	485	480	480	475	490	460	490	460	478.33	10.33
7	Total Suspended Solids,mg/l	10	10	18	10	12	14	18	10	12.33	3.20
8	Oil & Grease,mg/l	2.6	2.5	2.1	2.4	2.6	2.1	2.6	2.1	<3.0	0.23
9	Biochemical Oxygen Demand,mg/l	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	0	0	<2.0	<2.0
10	Chemical Oxygen Demand,mg/l	7.4	7.2	10	7.4	10	10	10	7.2	8.67	1.46
11	Dissolved Oxygen,mg/l	6.2	6.1	6.4	6.5	6.6	6.5	6.6	6.1	6.38	0.19
12	Chloride as Cl, mg/l	42	42.2	42.3	42.8	52.2	42.4	52.2	42	43.98	4.03
13	Sulphate (as SO4),mg/l	22	24	24	22	24	22	24	22	23.00	1.10
14	Fluoride (as F),mg/l	0.21	0.22	0.25	0.23	0.24	0.25	0.25	0.21	0.23	0.02
15	Total Hardness (as CaCO3),mg/l	175	170	188	175	180	196	196	170	180.67	9.67

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16	Calcium (as Ca),mg/l	48	45.6	44.8	50	47.6	52.8	52.8	44.8	48.13	2.94
17	Magnesium (as Mg),mg/l	13.4	13.7	18.13	12.25	15	15.68	18.13	12.25	14.69	2.07
18	Sodium (as Na),mg/l	45	40	24.2	38	32	24.4	45	24.2	33.93	8.55
19	Potassium (as K),mg/l	10	12	5.3	10	12	5.5	12	5.3	9.13	3.03
20	Total Nitrogen,mg/l	7.4	7.2	6.2	7.6	7.8	6.4	7.8	6.2	7.10	0.65
21	Dissolved Phosphate (as P),mg/l	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0	0	<0.03	<0.03
22	Iron (as Fe),mg/l	0.16	0.18	0.15	0.12	0.15	0.16	0.18	0.12	0.15	0.02
23	Copper (as Cu),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.74	0.72	0.74	0.75	0.79	0.78	0.79	0.72	0.75	0.03
27	Total Chromium as Cr,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
31	Total Kjeldhal nitrogen,mg/l	3.3	3.1	3.4	3	3.2	3.2	3.4	3	3.20	0.14
32	Free Ammonia (as NH3),mg/l	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0	0	<0.50	<0.50
33	Arsenic (as As),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
34	Mercury (as Hg),mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0	0	<0.001	<0.001
35	Selenium (as Se),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
36	Nickel (as Ni),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
37	Cyanide (as CN),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
38	Sulphides (as S),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
39	Manganese (as Mn),mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
40	Vanadium (as V),mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	0	<0.01	<0.01
41	Nitrate Nitrogen as N,mg/l	2.5	2.6	2.5	2.2	2.4	2.6	2.6	2.2	2.47	0.15
42	Escherichia coli (MPN/100ml)	10	10	10	10	10	10	10	10	10.00	0.00
43	Coliform Bacteria (MPN/100ml)	15	25	15	20	15	15	25	15	18.13	4.18
44	Bio-assay Test#, %	100	100	100	100	100	100	100	100	100.00	0.00

MPN-Most probable number

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TC-11181

			Test Report			Issue Date-24/09/2026	
			Surface/Ground water			Report N0.- ITS/IREL-WW-12	
Name and address	M/s. IREL (INDIA) LIMITED, Matikhala, Chatrapur, Ganjam, Odisha						
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024						
Sampling Done By	Mr. Suresh Pradhan						
Sample Description	Surface/ground water						
Sample Location	HARIPUR VILLAGE-W1						
Sample Quantity	2 Liter						
Sampling period	APRIL-2026 to SEP-2026						

S.No	Parameter	JUNE	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.28	7.32	7.32	7.28	7.30	0.03
2	Temperature	20.23	20.24	20.24	20.23	20.24	0.01
3	Turbidity, NTU	<1.0	<1.0	0	0	0.00	0.00
4	Colour, Hazen	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	260	255	260	255	257.50	3.54
6	Total Dissolved Solids,mg/l	820	810	820	810	815.00	7.07
7	Total Suspended Solids,mg/l	20	18	20	18	19.00	1.41
8	Oil & Grease,mg/l	<1	<1	0	0	<1.0	<1.0
9	Biochemical Oxygen Demand,mg/l	2.9	2.8	2.9	2.8	2.85	0.07
10	Chemical Oxygen Demand,mg/l	24	20	24	20	22.00	2.83
11	Dissolved Oxygen,mg/l	5.9	5.8	5.9	5.8	5.85	0.07
12	Chloride as Cl, mg/l	69.4	70.2	70.2	69.4	69.80	0.57
13	Sulphate (as SO4),mg/l	35.4	35.6	35.6	35.4	35.50	0.14
14	Fluoride (as F),mg/l	0.27	0.28	0.28	0.27	0.28	0.01
15	Total Hardness (as CaCO3),mg/l	220	232	232	220	226.00	8.49
16	Calcium (as Ca),mg/l	58.4	60	60	58.4	59.20	1.13
17	Magnesium (as Mg),mg/l	18.13	20.09	20.09	18.13	19.11	1.39
18	Sodium (as Na),mg/l	39.6	32	39.6	32	35.80	5.37
19	Potassium (as K),mg/l	12.4	10	12.4	10	11.20	1.70
20	Total Nitrogen,mg/l	5.6	5.5	5.6	5.5	5.55	0.07
21	Dissolved Phosphate (as P),mg/l	0.2	0.22	0.22	0.2	0.21	0.01
22	Iron (as Fe),mg/l	5.72	5.74	5.74	5.72	5.73	0.01
23	Copper (as Cu),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.8	0.86	0.86	0.8	0.83	0.04
27	Total Chromium as Cr,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	0	0	<0.1	0.00
29	Phenolic Compounds ,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.01	<0.01	0	0	<0.1	<0.1
31	Escherichia coli (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0
32	Coliform Bacteria (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0

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TC-11181

Test Report	Issue Date-24/09/2026
Surface/Ground water	Report NO.- ITS/IREL-WW-13

Name and address	M/s. IREL (INDIA) LIMITED, Matikhala, Chatrapur, Ganjam, Odisha
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024
Sampling Done By	Mr. Suresh Pradhan
Sample Description	Surface/ground water
Sample Location	UPALPATTI-2
Sample Quantity	2 Liter
Sampling period	APRIL-2026 to SEP-2026

S.No	Parameter	JUNE	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.18	7.32	7.32	7.18	7.25	0.10
2	Temperature	22.2	22.1	22.2	22.1	22.15	0.07
3	Turbidity, NTU	<1.0	<1.0	0	0	0.00	0.00
4	Colour, Hazen	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	225	230	230	225	227.50	3.54
6	Total Dissolved Solids,mg/l	840	830	840	830	835.00	7.07
7	Total Suspended Solids,mg/l	18.4	20	20	18.4	19.20	1.13
8	Oil & Grease,mg/l	<1	<1	0	0	<1	<1
9	Biochemical Oxygen Demand,mg/l	2.8	2.6	2.8	2.6	2.70	0.14
10	Chemical Oxygen Demand,mg/l	26	24	26	24	25.00	1.41
11	Dissolved Oxygen,mg/l	5.8	5.9	5.9	5.8	5.85	0.07
12	Chloride as Cl, mg/l	67.1	72.2	72.2	67.1	69.65	3.61
13	Sulphate (as SO4),mg/l	37.2	38	38	37.2	37.60	0.57
14	Fluoride (as F),mg/l	0.26	0.25	0.26	0.25	0.26	0.01
15	Total Hardness (as CaCO3),mg/l	230	218	230	218	224.00	8.49
16	Calcium (as Ca),mg/l	64	57.6	64	57.6	60.80	4.53
17	Magnesium (as Mg),mg/l	17.15	18.13	18.13	17.15	17.64	0.69
18	Sodium (as Na),mg/l	38.6	38.4	38.6	38.4	38.50	0.14
19	Potassium (as K),mg/l	15.7	14.2	15.7	14.2	14.95	1.06
20	Total Nitrogen,mg/l	5.8	5.9	5.9	5.8	5.85	0.07
21	Dissolved Phosphate (as P),mg/l	0.32	0.32	0.32	0.32	0.32	0.00
22	Iron (as Fe),mg/l	6.5	6.8	6.8	6.5	6.65	0.21
23	Copper (as Cu),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.92	0.98	0.98	0.92	0.95	0.04
27	Total Chromium as Cr,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.01	<0.01	0	0	<0.1	<0.1
31	Escherichia coli (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0
32	Coliform Bacteria (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0

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TC-11181

Test Report		Issue Date-24/09/2026
Surface/Ground water		Report N0.- ITS/IREL-WW-14
Name and address	M/s. IREL (INDIA) LIMITED, Matikhala, Chatrapur, Ganjam, Odisha	
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024	
Sampling Done By	Mr. Suresh Pradhan	
Sample Description	Surface/ground water	
Sample Location	KALIPILI-3	
Sample Quantity	2 Liter	
Sampling period	APRIL-2026 to SEP-2026	

S.No	Parameter	JUNE	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.28	7.45	7.45	7.28	7.37	0.12
2	Temperature	22.1	22.2	22.2	22.1	22.15	0.07
3	Turbidity, NTU	<1.0	<1.0	0	0	0.00	0.00
4	Colour, Hazen	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	215	225	225	215	220.00	7.07
6	Total Dissolved Solids,mg/l	774	780	780	774	777.00	4.24
7	Total Suspended Solids,mg/l	22.3	22.2	22.3	22.2	22.25	0.07
8	Oil & Grease,mg/l	<1	<1	0	0	<1.0	<1.0
9	Biochemical Oxygen Demand,mg/l	2.5	2.4	2.5	2.4	2.45	0.07
10	Chemical Oxygen Demand,mg/l	22	22	22	22	22.00	0.00
11	Dissolved Oxygen,mg/l	5.6	5.8	5.8	5.6	5.70	0.14
12	Chloride as Cl, mg/l	65.4	65.2	65.4	65.2	65.30	0.14
13	Sulphate (as SO4),mg/l	35.8	35.4	35.8	35.4	35.60	0.28
14	Fluoride (as F),mg/l	0.26	0.24	0.26	0.24	0.25	0.01
15	Total Hardness (as CaCO3),mg/l	198	190	198	190	194.00	5.66
16	Calcium (as Ca),mg/l	50	57.2	57.2	50	53.60	5.09
17	Magnesium (as Mg),mg/l	17.8	11.51	17.8	11.51	14.66	4.45
18	Sodium (as Na),mg/l	45.2	35.2	45.2	35.2	40.20	7.07
19	Potassium (as K),mg/l	14.2	15	15	14.2	14.60	0.57
20	Total Nitrogen,mg/l	4.5	4.2	4.5	4.2	4.35	0.21
21	Dissolved Phosphate (as P),mg/l	0.24	0.28	0.28	0.24	0.26	0.03
22	Iron (as Fe),mg/l	4.35	4.35	4.35	4.35	4.35	0.00
23	Copper (as Cu),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.85	0.86	0.86	0.85	0.86	0.01
27	Total Chromium as Cr,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.01	<0.01	0	0	<0.1	<0.1
31	Escherichia coli (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0
32	Coliform Bacteria (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0

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TC-11181

Test Report		Issue Date-24/09/2026
Surface/Ground water		Report N0.- ITS/IREL-WW-15
Name and address	M/s. IREL (INDIA) LIMITED, Matikhala, Chatrapur, Ganjam, Odisha	
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024	
Sampling Done By	Mr. Suresh Pradhan	
Sample Description	Surface/ground water	
Sample Location	BASANAPUTTI-4	
Sample Quantity	2 Liter	
Sampling period	APRIL-2026 to SEP-2026	

S.No	Parameter	JUNE	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.25	7.3	7.3	7.25	7.28	0.04
2	Temperature	22.4	22.1	22.4	22.1	22.25	0.21
3	Turbidity, NTU	<1.0	<1.0	0	0	0.00	0.00
4	Colour, Hazen	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	228	230	230	228	229.00	1.41
6	Total Dissolved Solids,mg/l	820	810	820	810	815.00	7.07
7	Total Suspended Solids,mg/l	15	14	15	14	14.50	0.71
8	Oil & Grease,mg/l	<1	<1	0	0	<3.0	<1.0
9	Biochemical Oxygen Demand,mg/l	2.9	2.8	2.9	2.8	2.85	0.07
10	Chemical Oxygen Demand,mg/l	20	20	20	20	20.00	0.00
11	Dissolved Oxygen,mg/l	5.5	5.4	5.5	5.4	5.45	0.07
12	Chloride as Cl, mg/l	68.4	70	70	68.4	69.20	1.13
13	Sulphate (as SO4),mg/l	36.1	38	38	36.1	37.05	1.34
14	Fluoride (as F),mg/l	0.32	0.34	0.34	0.32	0.33	0.01
15	Total Hardness (as CaCO3),mg/l	240	232	240	232	236.00	5.66
16	Calcium (as Ca),mg/l	68	60	68	60	64.00	5.66
17	Magnesium (as Mg),mg/l	17.15	17.15	17.15	17.15	17.15	0.00
18	Sodium (as Na),mg/l	26.4	24	26.4	24	25.20	1.70
19	Potassium (as K),mg/l	8.5	8.2	8.5	8.2	8.35	0.21
20	Total Nitrogen,mg/l	5.5	5.4	5.5	5.4	5.45	0.07
21	Dissolved Phosphate (as P),mg/l	0.28	0.25	0.28	0.25	0.27	0.02
22	Iron (as Fe),mg/l	0.74	0.72	0.74	0.72	0.73	0.01
23	Copper (as Cu),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.66	0.64	0.66	0.64	0.65	0.01
27	Total Chromium as Cr,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.01	<0.01	0	0	<0.1	<0.1
31	Escherichia coli (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0
32	Coliform Bacteria (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0

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TC-11181

			Test Report			Issue Date-24/09/2026	
			Surface/Ground water			Report N0.- ITS/IREL-WW-16	
Name and address	M/s. IREL (INDIA) LIMITED, Matikhala, Chatrapur, Ganjam, Odisha						
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024						
Sampling Done By	Mr. Suresh Pradhan						
Sample Description	Surface/ground water						
Sample Location	BADAPUTTI-5						
Sample Quantity	2 Liter						
Sampling period	APRIL-2026 to SEP-2026						

S.No	Parameter	JUNE	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.28	7.38	7.38	7.28	7.33	0.07
2	Temperature,@ 25ºC	22.1	22	22.1	22	22.05	0.07
3	Turbidity, NTU	<1.0	<1.0	0	0	0.00	0.00
4	Colour, Hazen	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	230	236	236	230	233.00	4.24
6	Total Dissolved Solids,mg/l	820	830	830	820	825.00	7.07
7	Total Suspended Solids,mg/l	16.2	16.8	16.8	16.2	16.50	0.42
8	Oil & Grease,mg/l	<1	<1	0	0	<3.0	<1.0
9	Biochemical Oxygen Demand,mg/l	2.6	2.8	2.8	2.6	2.70	0.14
10	Chemical Oxygen Demand,mg/l	25.8	25.8	25.8	25.8	25.80	0.00
11	Dissolved Oxygen,mg/l	5.5	5.6	5.6	5.5	5.55	0.07
12	Chloride as Cl, mg/l	72.2	72.5	72.5	72.2	72.35	0.21
13	Sulphate (as SO4),mg/l	39.8	39.4	39.8	39.4	39.60	0.28
14	Fluoride (as F),mg/l	0.24	0.22	0.24	0.22	0.23	0.01
15	Total Hardness (as CaCO3),mg/l	250	265	265	250	257.50	10.61
16	Calcium (as Ca),mg/l	70.4	71.2	71.2	70.4	70.80	0.57
17	Magnesium (as Mg),mg/l	17.7	21.35	21.35	17.7	19.53	2.58
18	Sodium (as Na),mg/l	27.8	27.5	27.8	27.5	27.65	0.21
19	Potassium (as K),mg/l	9.4	9.4	9.4	9.4	9.40	0.00
20	Total Nitrogen,mg/l	6.8	6.3	6.8	6.3	6.55	0.35
21	Dissolved Phosphate (as P),mg/l	0.35	0.3	0.35	0.3	0.33	0.04
22	Iron (as Fe),mg/l	0.72	0.72	0.72	0.72	0.72	0.00
23	Copper (as Cu),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.8	0.82	0.82	0.8	0.81	0.01
27	Total Chromium as Cr,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.01	<0.01	0	0	<0.1	<0.1
31	Escherichia coli (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0
32	Coliform Bacteria (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0

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TC-11181

		Test Report			Issue Date-24/09/2026		
		Surface/Ground water			Report N0.- ITS/IREL-WW-17		
Name and address	M/s. IREL (INDIA) LIMITED, Matikhala, Chatrapur, Ganjam, Odisha						
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024						
Sampling Done By	Mr. Suresh Pradhan						
Sample Description	Surface/ground water						
Sample Location	KANAMANA VILLAGE-6						
Sample Quantity	2 Liter						
Sampling period	APRIL-2026 to SEP-2026						

S.No	Parameter	JUNE	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.24	7.86	7.86	7.24	7.55	0.44
2	Temperature	22.5	22	22.5	22	22.25	0.35
3	Turbidity, NTU	<1.0	<1.0	0	0	0.00	0.00
4	Colour, Hazen	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	220	210	220	210	215.00	7.07
6	Total Dissolved Solids,mg/l	740	744	744	740	742.00	2.83
7	Total Suspended Solids,mg/l	19.2	12	19.2	12	15.60	5.09
8	Oil & Grease,mg/l	<1	<1	0	0	<3.0	<1.0
9	Biochemical Oxygen Demand,mg/l	2.5	2.8	2.8	2.5	2.65	0.21
10	Chemical Oxygen Demand,mg/l	22	18	22	18	20.00	2.83
11	Dissolved Oxygen,mg/l	4.5	5.2	5.2	4.5	4.85	0.49
12	Chloride as Cl, mg/l	66.4	69.21	69.21	66.4	67.81	1.99
13	Sulphate (as SO4),mg/l	34.2	32.2	34.2	32.2	33.20	1.41
14	Fluoride (as F),mg/l	0.28	0.26	0.28	0.26	0.27	0.01
15	Total Hardness (as CaCO3),mg/l	235	215	235	215	225.00	14.14
16	Calcium (as Ca),mg/l	56	52	56	52	54.00	2.83
17	Magnesium (as Mg),mg/l	23.2	20.82	23.2	20.82	22.01	1.68
18	Sodium (as Na),mg/l	25.4	19.2	25.4	19.2	22.30	4.38
19	Potassium (as K),mg/l	6.6	6.2	6.6	6.2	6.40	0.28
20	Total Nitrogen,mg/l	5.6	5.8	5.8	5.6	5.70	0.14
21	Dissolved Phosphate (as P),mg/l	0.34	0.35	0.35	0.34	0.35	0.01
22	Iron (as Fe),mg/l	0.82	0.83	0.83	0.82	0.83	0.01
23	Copper (as Cu),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.94	0.9	0.94	0.9	0.92	0.03
27	Total Chromium as Cr,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.01	<0.01	0	0	<0.1	<0.1
31	Escherichia coli (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0
32	Coliform Bacteria (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0

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TC-11181

		Test Report	Issue Date-24/09/2026
		Surface/Ground water	Report N0.- ITS/IREL-WW-18
Name and address	M/s. IREL (INDIA) LIMITED, Matikhala, Chatrapur, Ganjam, Odisha		
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024		
Sampling Done By	Mr. Suresh Pradhan		
Sample Description	Surface/ground water		
Sample Location	TAKIRIABERHAMPUR-7		
Sample Quantity	2 Liter		
Sampling period	APRIL-2026 to SEP-2026		

S.No	Parameter	JUNE	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.25	7.45	7.45	7.25	7.35	0.14
2	Temperature,@ 25ºC	21.5	21.1	21.5	21.1	21.30	0.28
3	Turbidity, NTU	<1.0	<1.0	0	0	0.00	0.00
4	Colour, Hazen	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	225	230	230	225	227.50	3.54
6	Total Dissolved Solids,mg/l	790	745	790	745	767.50	31.82
7	Total Suspended Solids,mg/l	20	22	22	20	21.00	1.41
8	Oil & Grease,mg/l	<1	<1	0	0	<3.0	<1.0
9	Biochemical Oxygen Demand,mg/l	2.6	2.5	2.6	2.5	2.55	0.07
10	Chemical Oxygen Demand,mg/l	24	22	24	22	23.00	1.41
11	Dissolved Oxygen,mg/l	5.6	5.8	5.8	5.6	5.70	0.14
12	Chloride as Cl, mg/l	61.8	65.2	65.2	61.8	63.50	2.40
13	Sulphate (as SO4),mg/l	32.5	30	32.5	30	31.25	1.77
14	Fluoride (as F),mg/l	0.26	0.28	0.28	0.26	0.27	0.01
15	Total Hardness (as CaCO3),mg/l	225	240	240	225	232.50	10.61
16	Calcium (as Ca),mg/l	66	60.8	66	60.8	63.40	3.68
17	Magnesium (as Mg),mg/l	15.9	21.56	21.56	15.9	18.73	4.00
18	Sodium (as Na),mg/l	52.9	35.4	52.9	35.4	44.15	12.37
19	Potassium (as K),mg/l	12.4	12.1	12.4	12.1	12.25	0.21
20	Total Nitrogen,mg/l	5.5	5.6	5.6	5.5	5.55	0.07
21	Dissolved Phosphate (as P),mg/l	0.24	0.25	0.25	0.24	0.25	0.01
22	Iron (as Fe),mg/l	0.75	0.74	0.75	0.74	0.75	0.01
23	Copper (as Cu),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.86	0.86	0.86	0.86	0.86	0.00
27	Total Chromium as Cr,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.01	<0.01	0	0	<0.1	<0.1
31	Escherichia coli (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0
32	Coliform Bacteria (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0

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TC-11181

			Test Report		Issue Date-09/04/2026		
			Surface/Ground water		Report N0.- ITS/IREL-WW-19		
Name and address	M/s. IREL (INDIA) LIMITED, Matikhala, Chatrapur, Ganjam, Odisha						
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024						
Sampling Done By	Mr. Suresh Pradhan						
Sample Description	Surface/ground water						
Sample Location	BADAARJYAPALLI-8						
Sample Quantity	2 Liter						
Sampling period	APRIL-2026 to SEP-2026						
S.No	Parameter	JUNE	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.35	7.48	7.48	7.35	7.42	0.09
2	Temperature	22.1	22.2	22.2	22.1	22.15	0.07
3	Turbidity, NTU	<1.0	<1.0	0	0	0.00	0.00
4	Colour, Hazen	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	235	240	240	235	237.50	3.54
6	Total Dissolved Solids,mg/l	780	789	789	780	784.50	6.36
7	Total Suspended Solids,mg/l	20.4	20.4	20.4	20.4	20.40	0.00
8	Oil & Grease,mg/l	<1	<1	0	0	<3.0	<1.0
9	Biochemical Oxygen Demand,mg/l	2.3	2.4	2.4	2.3	2.35	0.07
10	Chemical Oxygen Demand,mg/l	22	20	22	20	21.00	1.41
11	Dissolved Oxygen,mg/l	5.6	5.8	5.8	5.6	5.70	0.14
12	Chloride as Cl, mg/l	60.4	68.2	68.2	60.4	64.30	5.52
13	Sulphate (as SO4),mg/l	37.6	38.2	38.2	37.6	37.90	0.42
14	Fluoride (as F),mg/l	0.28	0.29	0.29	0.28	0.29	0.01
15	Total Hardness (as CaCO3),mg/l	230	248	248	230	239.00	12.73
16	Calcium (as Ca),mg/l	68	68	68	68	68.00	0.00
17	Magnesium (as Mg),mg/l	14.7	19.11	19.11	14.7	16.91	3.12
18	Sodium (as Na),mg/l	42.2	36.4	42.2	36.4	39.30	4.10
19	Potassium (as K),mg/l	12.6	12.2	12.6	12.2	12.40	0.28
20	Total Nitrogen,mg/l	5.8	5.4	5.8	5.4	5.60	0.28
21	Dissolved Phosphate (as P),mg/l	0.22	0.28	0.28	0.22	0.25	0.04
22	Iron (as Fe),mg/l	0.84	0.8	0.84	0.8	0.82	0.03
23	Copper (as Cu),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.85	0.8	0.85	0.8	0.83	0.04
27	Total Chromium as Cr,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.01	<0.01	0	0	<0.1	<0.1
31	Escherichia coli (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0
32	Coliform Bacteria (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0

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TC-11181

		Test Report	Issue Date-24/09/2026
		Surface/Ground water	Report N0.- ITS/IREL-WW-20
Name and address	M/s. IREL (INDIA) LIMITED, Matikhala, Chatrapur, Ganjam, Odisha		
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024		
Sampling Done By	Mr. Suresh Pradhan		
Sample Description	Surface/ground water		
Sample Location	SANA ARJYAPALLI-9		
Sample Quantity	2 Liter		
Sampling period	APRIL-2026 to SEP-2026		

S.No	Parameter	JUNE	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.19	7.25	7.25	7.19	7.22	0.04
2	Temperature	20.1	20.4	20.4	20.1	20.25	0.21
3	Turbidity, NTU	<1.0	<1.0	0	0	0.00	0.00
4	Colour, Hazen	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	220	210	220	210	215.00	7.07
6	Total Dissolved Solids,mg/l	800	790	800	790	795.00	7.07
7	Total Suspended Solids,mg/l	22.2	22	22.2	22	22.10	0.14
8	Oil & Grease,mg/l	<1	<1	0	0	<3.0	<1.0
9	Biochemical Oxygen Demand,mg/l	2.6	2.4	2.6	2.4	2.50	0.14
10	Chemical Oxygen Demand,mg/l	28	26	28	26	27.00	1.41
11	Dissolved Oxygen,mg/l	5.6	5.2	5.6	5.2	5.40	0.28
12	Chloride as Cl, mg/l	65.4	62.2	65.4	62.2	63.80	2.26
13	Sulphate (as SO4),mg/l	32.1	30.2	32.1	30.2	31.15	1.34
14	Fluoride (as F),mg/l	0.32	0.3	0.32	0.3	0.31	0.01
15	Total Hardness (as CaCO3),mg/l	240	226	240	226	233.00	9.90
16	Calcium (as Ca),mg/l	60.4	66	66	60.4	63.20	3.96
17	Magnesium (as Mg),mg/l	21.8	14.9	21.8	14.9	18.35	4.88
18	Sodium (as Na),mg/l	41.2	40.4	41.2	40.4	40.80	0.57
19	Potassium (as K),mg/l	13.4	10.2	13.4	10.2	11.80	2.26
20	Total Nitrogen,mg/l	6.5	6.2	6.5	6.2	6.35	0.21
21	Dissolved Phosphate (as P),mg/l	0.22	0.2	0.22	0.2	0.21	0.01
22	Iron (as Fe),mg/l	0.74	0.72	0.74	0.72	0.73	0.01
23	Copper (as Cu),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.81	0.88	0.88	0.81	0.85	0.05
27	Total Chromium as Cr,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.01	<0.01	0	0	<0.1	<0.1
31	Escherichia coli (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0
32	Coliform Bacteria (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0

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TC-11181

Test Report						Issue Date-24/04/2026	
Surface/Ground water						Report N0.- ITS/IREL-WW-21	
Name and address	M/s. IREL (INDIA) LIMITED, Matikhala, Chatrapur, Ganjam, Odisha						
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024						
Sampling Done By	Mr. Suresh Pradhan						
Sample Description	Surface/ground water						
Sample Location	KANDRA ARJYAPALLI-10						
Sample Quantity	2 Liter						
Sampling period	APRIL-2026 to SEP-2026						

S.No	Parameter	JUNE	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.65	7.85	7.85	7.65	7.75	0.14
2	Temperature	22.2	22.4	22.4	22.2	22.30	0.14
3	Turbidity, NTU	<1.0	<1.0	0	0	0.00	0.00
4	Colour, Hazen	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	250	255	255	250	252.50	3.54
6	Total Dissolved Solids,mg/l	852	845	852	845	848.50	4.95
7	Total Suspended Solids,mg/l	21.4	21.2	21.4	21.2	21.30	0.14
8	Oil & Grease,mg/l	<1	<1	0	0	<3.0	<1.0
9	Biochemical Oxygen Demand,mg/l	2.3	2.2	2.3	2.2	2.25	0.07
10	Chemical Oxygen Demand,mg/l	18	16	18	16	17.00	1.41
11	Dissolved Oxygen,mg/l	5.8	5.9	5.9	5.8	5.85	0.07
12	Chloride as Cl, mg/l	62.8	62.2	62.8	62.2	62.50	0.42
13	Sulphate (as SO4),mg/l	33.4	34	34	33.4	33.70	0.42
14	Fluoride (as F),mg/l	0.26	0.26	0.26	0.26	0.26	0.00
15	Total Hardness (as CaCO3),mg/l	225	228	228	225	226.50	2.12
16	Calcium (as Ca),mg/l	59.2	63.2	63.2	59.2	61.20	2.83
17	Magnesium (as Mg),mg/l	18.8	17.15	18.8	17.15	17.98	1.17
18	Sodium (as Na),mg/l	36	34	36	34	35.00	1.41
19	Potassium (as K),mg/l	12.2	12.5	12.5	12.2	12.35	0.21
20	Total Nitrogen,mg/l	6.86	6.82	6.86	6.82	6.84	0.03
21	Dissolved Phosphate (as P),mg/l	0.24	0.22	0.24	0.22	0.23	0.01
22	Iron (as Fe),mg/l	0.7	0.72	0.72	0.7	0.71	0.01
23	Copper (as Cu),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.82	0.81	0.82	0.81	0.82	0.01
27	Total Chromium as Cr,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.01	<0.01	0	0	<0.1	<0.1
31	Escherichia coli (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0
32	Coliform Bacteria (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0

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TC-11181

		Test Report	Issue Date-24/09/2026
		Surface/Ground water	Report N0.- ITS/IREL-WW-22
Name and address	M/s. IREL (INDIA) LIMITED, Matikhala, Chatrapur, Ganjam, Odisha		
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024		
Sampling Done By	Mr. Suresh Pradhan		
Sample Description	Surface/ground water		
Sample Location	NALIANUAGAM-11		
Sample Quantity	2 Liter		
Sampling period	APRIL-2026 to SEP-2026		

S.No	Parameter	JUNE	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.72	7.7	7.72	7.7	7.71	0.01
2	Temperature,@ 25ºC	22.4	22.2	22.4	22.2	22.30	0.14
3	Turbidity, NTU	<1.0	<1.0	0	0	0.00	0.00
4	Colour, Hazen	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	250	256	256	250	253.00	4.24
6	Total Dissolved Solids,mg/l	830	832	832	830	831.00	1.41
7	Total Suspended Solids,mg/l	22.4	20	22.4	20	21.20	1.70
8	Oil & Grease,mg/l	<1	<1	0	0	<3.0	<1.0
9	Biochemical Oxygen Demand,mg/l	3.2	3.4	3.4	3.2	3.30	0.14
10	Chemical Oxygen Demand,mg/l	25	20	25	20	22.50	3.54
11	Dissolved Oxygen,mg/l	6.4	6.6	6.6	6.4	6.50	0.14
12	Chloride as Cl, mg/l	61	61.2	61.2	61	61.10	0.14
13	Sulphate (as SO4),mg/l	35.1	35.2	35.2	35.1	35.15	0.07
14	Fluoride (as F),mg/l	0.24	0.25	0.25	0.24	0.25	0.01
15	Total Hardness (as CaCO3),mg/l	240	235	240	235	237.50	3.54
16	Calcium (as Ca),mg/l	60	60.8	60.8	60	60.40	0.57
17	Magnesium (as Mg),mg/l	22	20.33	22	20.33	21.17	1.18
18	Sodium (as Na),mg/l	35	30	35	30	32.50	3.54
19	Potassium (as K),mg/l	15.6	15	15.6	15	15.30	0.42
20	Total Nitrogen,mg/l	5.5	5.8	5.8	5.5	5.65	0.21
21	Dissolved Phosphate (as P),mg/l	0.24	0.26	0.26	0.24	0.25	0.01
22	Iron (as Fe),mg/l	0.72	0.78	0.78	0.72	0.75	0.04
23	Copper (as Cu),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.82	0.84	0.84	0.82	0.83	0.01
27	Total Chromium as Cr,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.01	<0.01	0	0	<0.1	<0.1
31	Escherichia coli (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0
32	Coliform Bacteria (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0

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TC-11181

Test Report **Issue Date-24/09/2026**

Surface/Ground water Report N0.- ITS/IREL-WW-23

Name and address	M/s. IREL (INDIA) LIMITED, Matikhala, Chatrapur, Ganjam, Odisha
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024
Sampling Done By	Mr. Suresh Pradhan
Sample Description	Surface/ground water
Sample Location	TAMPARA LAKE-12
Sample Quantity	2 Liter
Sampling period	APRIL-2026 to SEP-2026

S.No	Parameter	JUNE	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.35	7.55	7.55	7.35	7.45	0.14
2	Temperature	21.6	21	21.6	21	21.30	0.42
3	Turbidity, NTU	<1.0	<1.0	0	0	0.00	0.00
4	Colour, Hazen	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	185	180	185	180	182.50	3.54
6	Total Dissolved Solids,mg/l	650	640	650	640	645.00	7.07
7	Total Suspended Solids,mg/l	22	20	22	20	21.00	1.41
8	Oil & Grease,mg/l	<3.0	<3.0	0	0	<3.0	<1.0
9	Biochemical Oxygen Demand,mg/l	4.5	4.2	4.5	4.2	4.35	0.21
10	Chemical Oxygen Demand,mg/l	25	20	25	20	22.50	3.54
11	Dissolved Oxygen,mg/l	5.6	5.4	5.6	5.4	5.50	0.14
12	Chloride as Cl, mg/l	68	72	72	68	70.00	2.83
13	Sulphate (as SO4),mg/l	40	35	40	35	37.50	3.54
14	Fluoride (as F),mg/l	0.35	0.32	0.35	0.32	0.34	0.02
15	Total Hardness (as CaCO3),mg/l	170	170	170	170	170.00	0.00
16	Calcium (as Ca),mg/l	44	48	48	44	46.00	2.83
17	Magnesium (as Mg),mg/l	15	12.25	15	12.25	13.63	1.94
18	Sodium (as Na),mg/l	43.2	35	43.2	35	39.10	5.80
19	Potassium (as K),mg/l	2.5	5.6	5.6	2.5	4.05	2.19
20	Total Nitrogen,mg/l	9.5	9.8	9.8	9.5	9.65	0.21
21	Dissolved Phosphate (as P),mg/l	0.56	0.54	0.56	0.54	0.55	0.01
22	Iron (as Fe),mg/l	0.72	0.7	0.72	0.7	0.71	0.01
23	Copper (as Cu),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.8	0.82	0.82	0.8	0.81	0.01
27	Total Chromium as Cr,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.1	<0.1	0	0	<0.1	<0.1
31	Escherichia coli (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0
32	Coliform Bacteria (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0

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TC-11181

			Test Report			Issue Date-24/09/2026	
			Surface/Ground water			Report N0.- ITS/IREL-WW-24	
Name and address		M/s. IREL (INDIA) LIMITED, Matikhala, Chatrapur, Ganjam, Odisha					
Work Order No.		GEMC 511687709360706/07/SC-11684, Dated-19.11.2024					
Sampling Done By		Mr. Suresh Pradhan					
Sample Description		Surface/ground water					
Sample Location		PORT POND-13					
Sample Quantity		2 Liter					
Sampling period		APRIL-2026 to SEP-2026					
S.No	Parameter	JUNE	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	7.65	7.65	7.65	7.65	7.65	0.00
2	Temperature	22	21.8	22	21.8	21.90	0.14
3	Turbidity, NTU	<1.0	<1.0	0	0	0.00	0.00
4	Colour, Hazen	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	180	175	180	175	177.50	3.54
6	Total Dissolved Solids,mg/l	745	740	745	740	742.50	3.54
7	Total Suspended Solids,mg/l	15	15	15	15	15.00	0.00
8	Oil & Grease,mg/l	<3.0	<3.0	0	0	<3.0	<1.0
9	Biochemical Oxygen Demand,mg/l	6.6	6.4	6.6	6.4	6.50	0.14
10	Chemical Oxygen Demand,mg/l	20	22	22	20	21.00	1.41
11	Dissolved Oxygen,mg/l	6.8	6.8	6.8	6.8	6.80	0.00
12	Chloride as Cl, mg/l	60	68	68	60	64.00	5.66
13	Sulphate (as SO4),mg/l	52	38	52	38	45.00	9.90
14	Fluoride (as F),mg/l	0.34	0.32	0.34	0.32	0.33	0.01
15	Total Hardness (as CaCO3),mg/l	180	182	182	180	181.00	1.41
16	Calcium (as Ca),mg/l	46	50	50	46	48.00	2.83
17	Magnesium (as Mg),mg/l	15.6	13.9	15.6	13.9	14.75	1.20
18	Sodium (as Na),mg/l	46.5	46.2	46.5	46.2	46.35	0.21
19	Potassium (as K),mg/l	2.4	2.8	2.8	2.4	2.60	0.28
20	Total Nitrogen,mg/l	8.5	8.6	8.6	8.5	8.55	0.07
21	Dissolved Phosphate (as P),mg/l	0.56	0.58	0.58	0.56	0.57	0.01
22	Iron (as Fe),mg/l	0.72	0.7	0.72	0.7	0.71	0.01
23	Copper (as Cu),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.74	0.72	0.74	0.72	0.73	0.01
27	Total Chromium as Cr,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.1	<0.1	0	0	<0.1	<0.1
31	Escherichia coli (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0
32	Coliform Bacteria (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0

CHECKED BY

ITS TESTING LABORATORY PVT. LTD.

AUTHORIZED SIGNATORY

Terms & Conditions :

1. Test reports are valid only for the samples tested in our laboratory. 2. Samples will destroyed as per quality policy.
3. Any complaints about the report should be communicated in writing within 7 days.
4. Total liability or our laboratory is limited to invoiced amount.

ITS TESTING LABORATORY PRIVATE LIMITED

Laboratory: A-114, Sector-80, Phase-II Noida, Gautam Budh Nagar - 201305, (U.P.)
(An ISO 9001: 2015, ISO 14001:2015 & ISO 45001:2018 Certified Laboratory)
Website: www.itslab.in, Email: itlrclab@gmail.com, info@itslab.in, contact@itslab.in
+91 9911659800, 9305780312, 09958849764

TC-11181

		Test Report			Issue Date-24/09/2026		
		Surface/Ground water			Report N0.- ITS/IREL-WW-25		
Name and address	M/s. IREL (INDIA) LIMITED, Matikhala, Chatrapur, Ganjam, Odisha						
Work Order No.	GEMC 511687709360706/07/SC-11684, Dated-19.11.2024						
Sampling Done By	Mr. Suresh Pradhan						
Sample Description	Surface/ground water						
Sample Location	SEA WATER						
Sample Quantity	2 Liter						
Sampling period	APRIL-2026 to SEP-2026						

S.No	Parameter	JUNE	SEP	Max	Min	Average	SD
1	pH Value @ 25ºC	8	7.65	8	7.65	7.83	0.25
2	Temperature,	22.1	22.2	22.2	22.1	22.15	0.07
3	Turbidity, NTU	<1.0	<1.0	0	0	0.00	0.00
4	Colour, Hazen	<5.0	<5.0	0	0	<5.0	0.00
5	Alkalinity (as CaCO3), mg/l	130	135	135	130	132.50	3.54
6	Total Dissolved Solids,mg/l	34220	34000	34220	34000	34110	155.56
7	Total Suspended Solids,mg/l	70	80	80	70	75.00	7.07
8	Oil & Grease,mg/l	<3	<3	0	0	<3.0	<1.0
9	Biochemical Oxygen Demand,mg/l	5.9	6	6	5.9	5.95	0.07
10	Chemical Oxygen Demand,mg/l	32	40	40	32	36.00	5.66
11	Dissolved Oxygen,mg/l	5.8	5.9	5.9	5.8	5.85	0.07
12	Chloride as Cl, mg/l	17800	17200	17800	17200	17500	424.26
13	Sulphate (as SO4),mg/l	3720	3780	3780	3720	3750	42.43
14	Fluoride (as F),mg/l	1.1	1.12	1.12	1.1	1.11	0.01
15	Total Hardness (as CaCO3),mg/l	7450	7280	7450	7280	7365	120.21
16	Calcium (as Ca),mg/l	190	168	190	168	179	15.56
17	Magnesium (as Mg),mg/l	1708	1662	1708	1662	1685	32.53
18	Sodium (as Na),mg/l	9690	9624	9690	9624	9657	46.67
19	Potassium (as K),mg/l	575	575	575	575	575	0.00
20	Total Nitrogen,mg/l	13.5	13.6	13.6	13.5	13.55	0.07
21	Dissolved Phosphate (as P),mg/l	0.64	0.65	0.65	0.64	0.65	0.01
22	Iron (as Fe),mg/l	1.35	1.42	1.42	1.35	1.39	0.05
23	Copper (as Cu),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
24	Cadmium (as Cd),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
25	Lead (as Pb),mg/l	<0.01	<0.01	0	0	<0.01	<0.01
26	Zinc (as Zn),mg/l	0.84	0.88	0.88	0.84	0.86	0.03
27	Total Chromium as Cr,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
28	Hexavalent Chromium (as Cr+6),mg/l	<0.1	<0.1	0	0	<0.1	<0.1
29	Phenolic Compounds ,mg/l	<0.01	<0.01	0	0	<0.01	<0.01
30	Total Residual Chlorine,mg/l	<0.1	<0.1	0	0	<0.1	<0.1
31	Escherichia coli (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0
32	Coliform Bacteria (MPN/100ml)	<2.0	<2.0	0	0	0.00	<2.0

CHECKED BY

AUTHORIZED SIGNATORY

Terms & Conditions :

1. Test reports are valid only for the samples tested in our laboratory. 2. Samples will destroyed as per quality policy.
3. Any complaints about the report should be communicated in writing within 7 days.
4. Total liability or our laboratory is limited to invoiced amount.

Government of India
Bhabha Atomic Research Centre
Health Physics Division,
Radiation Protection Section (NF)
(Health Physics Unit, IREL (India) Limited, OSCOM)

Ref: HPU/03(08)/701

Date: 12/10/2026

(a) Noise level monitored during the period
April 2026 to September 2026

Sl. No.	Area Monitored	Exact Location	Noise Level dB(A)	Personal Protective Equipment's used
01	Dredge & Wet up gradation Plant (General Area)	Skid Base Area	59-78	
02	Dredge &Wet upgradation Plant (Other Area)	Control Room	67-81	
03	Mineral Separation Plant (General Area)	Shift Office Room	65-73	
04	Mineral Separation Plant (At 12 m, near IRMS)	Near IRMS	65-82	
05	Mineral Separation Plant (Near Air Table)	General area	65-81	
06	Mineral Separation Plant (Near Vibrating Screen)	Vibrating Screen	80-90	Ear Muff/ Ear Plug
07	Compressor House REEP	At REEP	88-107	Ear Muff/ Ear Plug
08	Compressor House REEP (Operator Room)	At REEP	67-75	
09	Attack Plant REEP (General Area)	Middle Area of Process Building (GF)	80-92	Ear Muff/ Ear Plug
10	Active Plant REEP (General Area)	Middle Area of Process Building (GF)	75-88	Ear Muff/ Ear Plug
11	Active Plant REEP (Scrubber Fan Area)	Near Scrubber Fan	91-105	Ear Muff/ Ear Plug
12	Boiler House (General Area)	In Side Boiler House	71-103	Ear Muff/ Ear Plug
13	Workshop (General Area)	Carpentry area in general	38-55	
14	Auto shop (General Area)	Near Auto pool Area	40-56	

TLV-85 dB(A)/ 8 hrs.

(b) Radiation level monitored during the period April 2026 to September 2026

Sl. No	Location	Gamma Exposure Rate (μGyh^{-1})	
		Contact	**1m away**
1.1	Mining Area (Before Mining)	--	0.4 - 1.7
1.2	Mined Out Area (After Mining)	--	0.1 - 0.3
2	**MINERAL SEPARATION PLANT**		
2.1	Ground Floor (In General)	--	0.8 - 6.0
2.2	4.5 m Level (In General)	--	1.8 - 2.5
2.3	9.0 m Level (In General)	--	2.0 - 4.0
2.4	12.0 m Level (In General)	--	1.5 - 3.0
2.5	16.0 m Level (In General)	--	1.2 - 2.5
2.6	Monazite Trench	--	35 - 55
2.7	Reject Disposal Site	--	--
3	**REEP**		
3.1	Monazite Stores	95 - 189	24 - 151
3.2	Feed Area	--	2 - 75
3.3	Attack Plant in general	4 - 30	0.3 - 11.0
3.4	Control room Attack Plant	--	0.10 - 0.35
3.5	RE Chloride Plant/Stores	--	0.1 - 0.7
3.4	Active Plant GF	--	17 - 187
3.5	Active Plant Top	--	7 - 31
3.6	Active Plant Control room	--	0.3 - 1.6
3.7	Uranium - Thorium separation section	--	0.7 - 2.1
3.8	Uranium - Section	--	0.2 - 9.0
3.9	Thorium section	--	0.8 - 20.0
3.1	Product Stores	--	0.3 - 16.0
3.11	Solid Waste Stacking Area (temp)	8.0 - 32.0	2.8 - 12.6
3.12	Solid Waste Trench	1 - 160	0.6 - 58
3.13	Sodium nitrate storage pond area	--	3 - 11
3.14	REEP-Effluent treatment plant	--	0.2 - 1.5
3.15	REEP Office Area	--	0.1 - 0.5
4	**Boiler House**	--	0.1 - 1.2
5	**Workshop Area**	--	0.2 - 0.3

TLV - 8 μGyh^{-1}

(c) Analysis of Soil Samples collected during the period
April 2026 to September 2026

Sl. No	Location	Period	Analysis Details (Bqg^{-1})	
			Gross α	Gross β
01	Mining Area	April 2026 to June 2026	2.06	2.62
02	Mined Out Area		0.64	1.25
03	Matikhalo Village Area		1.10	1.79
04	Kanamana Village		1.89	2.20
05	Solid Waste Trench area		2.50	3.02
06	Sodium Nitrate Storage Pond area		2.08	2.56

Sl. No	Location	Period	Analysis Details (Bqg^{-1})	
			Gross α	Gross β
01	Mining area	July 2026 To September 2026	2.11	2.78
02	Mined Out Area		0.90	1.40
03	Matikhalo Village Area		0.70	1.15
04	Kanamana Village		0.98	1.30
05	Solid Waste Trench area		2.19	2.66
06	Sodium Nitrate Storage Pond area		2.15	3.16

(d) Water activity level monitored during
April 2026 to September 2026

Sl. No	Location	Period	Activity Levels (Bql^{-1})	
			Gross α	Gross β
1	Matikhalo	April 2026 to June 2026	0.10	0.58
2	Badaputty		0.11	0.59
3	Basanaputty		0.09	0.63
4	T Berhampur		0.13	0.73
5	K Arjipalli		0.07	0.53
6	Bada Arjipalli		0.06	0.55
7	Kanamana		0.09	0.67
8	Dredge Pond		-	-
9	Lily pond		0.16	0.60
10	OPHD		0.08	0.48
11	Pond-1		0.50	1.15
12	RPP pit		-	-
13	MOPP-UP		0.35	0.73
14	MOPP-DOWN		0.51	0.87
15	Bore hole near platform		0.38	0.86
16	Composite MSP		-	-
17	SEP-UP		0.32	0.83
18	SEP-DOWN		0.27	0.72
19	SWT-UP		1.11	1.62

TLV- Gross α= 0.1 Bq/l Gross β =1.0 Bq/l

Sl. No	Location	Period	Activity Levels (Bql^{-1})	
			Gross α	Gross β
1	Matikhalo	July 2026 To September 2026	0.12	0.62
2	Badaputty		0.09	0.60
3	Basanaputty		0.08	0.66
4	T Berhampur		0.11	0.76
5	K Arjipalli		0.07	0.50
6	Bada Arjipalli		0.06	0.53
7	Kanamana		0.10	0.65
8	Dredge Pond		-	-
9	Lily pond		0.15	0.63
10	OPHD		0.07	0.44
11	Pond-1		0.48	1.11
12	RPP pit		-	-
13	MOPP-UP		0.33	0.71
14	MOPP-DOWN		0.49	0.84
15	Bore hole near platform		0.33	0.86
16	Composite MSP		-	-
17	SEP-UP		0.33	0.83
18	SEP-DOWN		0.25	0.71
19	SWT-UP		1.11	1.63

TLV- Gross α= 0.1 Bq/l Gross β =1.0 Bq/l

For Annapurna Port

(Abinash Sahu) 15/10/26.
OIC, HPU

To

I/C TS.

CC: GM & Head, OSCOM for kind information.

O/C

आई आर ई एल (इंडिया) लिमिटेड / ऑसकॉम ***IREL (India) Limited / OSCOM

चिकित्सा बिभाग / Medical Department

Ref: IREL/Med/388 Date: 7th May 2026

Disease Profile Analysis 2025

1. Disease Profile Analysis of OSCOM Unit for the year 2025 is submitted below.

2. Data have been collected from various registers maintained at OHC & FHC. The picture thus emerged by analyzing all types of diseases are submitted below:-

S. No	CATEGORIES OF DISEASE OBSERVED	REGULAR EMPLOYEES, OISF, HPU, AECS, DEPENDENTS					CONTRACT WORKERS & OTHERS				
		OHC	FHC	Total	Total Patient	%	OHC	FHC	Total	Total Patient	%
1	DIARRHOEA & DYSENTRY	85	327	412	8370	4.92	135	144	279	5046	5.52
2	PARASITIC / INFECTION	02	60	62	8370	0.74	01	14	15	5046	0.29
3	DYSPESIA & FLATULENCE	04	22	26	8370	0.31	13	10	23	5046	0.45
4	A P D / HYPERACIDITY	222	635	857	8370	10.23	187	269	456	5046	9.03
5	ENTERIC FEVER	00	05	05	8370	0.05	00	00	00	5046	00
6	MALARIA FEVER	01	02	03	8370	0.03	00	00	00	5046	00
7	OTHER FEVER CASES	47	276	323	8370	3.85	138	138	276	5046	5.46
8	COMMON COLD	254	986	1240	8370	14.81	481	512	993	5046	19.6
9	OTHER RESPIRATORY INFECTION	147	776	923	8370	11.02	215	360	575	5046	11.3
10	URINARY TRACT INFECTION	10	77	87	8370	1.03	02	10	12	5046	0.23
11	BRONCHIAL ASTHMA	02	38	40	8370	0.47	01	03	04	5046	0.07
12	HYPERTENSION	115	211	326	8370	3.89	27	57	84	5046	1.66
13	HYPOTENSION	10	22	32	8370	0.38	05	13	18	5046	0.35
14	CARDIAC CASES	48	18	66	8370	0.78	00	03	03	5046	0.05
15	DIABETES MELLITUS	47	152	199	8370	2.37	11	40	51	5046	1.01
16	TUBERCULOSIS	00	00	00	8370	00	01	01	02	5046	0.03
17	HENSENS' DISEASES	00	00	00	8370	00	00	00	00	5046	00
18	SKIN DISEASES										
	A. FUNGAL INFECTION	37	187	223	8370	2.66	18	53	71	5046	1.40
	B. SCABIES	02	29	31	8370	0.37	01	13	14	5046	0.27
	C. ECZEMA (ALLIED etc.)	00	00	00	8370	00	00	00	00	5046	00
	D. LEUCODERMA	00	00	00	8370	00	00	00	00	5046	00
19	PROTEIN CALORIE DEFICIENCY	00	01	01	8370	0.01	00	01	01	5046	0.01
20	VITAMIN DEFICIENCY	20	204	224	8370	2.67	13	81	94	5046	1.86
21	ANEMIA	13	19	32	8370	0.38	09	17	26	5046	0.51
22	HEPATITIS (JAUNDICE)	02	02	04	8370	0.04	00	01	01	5046	0.01
23	ALLERGIC DISEASES										
	A. DRUG ALLERGIC	01	01	02	8370	0.02	00	01	01	5046	0.01
	B. URTICARIAS etc.	14	76	90	8370	1.07	17	24	41	5046	0.81
24	FILARIASIS	00	00	00	8370	00	00	00	00	5046	00
25	VENEREAL DISEASES	00	00	00	8370	00	00	00	00	5046	00
26	CHRONIC ARTHRITIS										
	A. LIMB JOINTS	106	272	378	8370	4.51	64	126	190	5046	3.76
	B. VERTEBRAL JOINTS	37	78	115	8370	1.37	36	38	74	5046	1.46
27	PSYCHIATRIC CASES / EPILEPSY	06	01	07	8370	0.08	02	00	02	5046	0.03

Contd.....2/-

Contd.....2/-

Disease Profile Analysis 2025

S. No	CATEGORIES OF DISEASE OBSERVED	REGULAR EMPLOYEES, OISF, HPU, AECS, DEPENDENTS					CONTRACT WORKERS & OTHERS				
		OHC	FHC	Total	Total Patient	%	OHC	FHC	Total	Total Patient	%
28	EYE DISEASES										
	A. EYE INFECTIONS	45	150	195	8370	2.32	143	00	143	5046	2.83
	B. EYE INJURY	08	00	08	8370	0.09	10	01	11	5046	0.21
	C. DEFECTIVE VISIONS	19	21	40	8370	0.47	14	03	17	5046	0.33
29	DENTAL INFECTIONS	11	68	79	8370	0.94	24	26	50	5046	0.99
30	EAR INFECTIONS (CSOM / ASOM)	11	62	73	8370	0.87	21	30	51	5046	1.01
31	PILES	04	09	13	8370	0.15	01	00	01	5046	0.01
32	MENSTRUAL DISORDERS	08	21	29	8370	0.34	00	07	07	5046	0.13
33	DISLOCATIONS & SPRAINS	40	112	152	8370	1.81	61	71	132	5046	2.61
34	BURNS & SCALDS	05	10	15	8370	0.17	18	13	31	5046	0.61
35	INJURY INCIDENCES	26	84	110	8370	1.31	61	57	118	5046	2.33
36	NEUROLOGICAL DEFICIENCIES	09	10	19	8370	0.22	06	00	06	5046	0.11
37	MALIGNANCY	04	00	04	8370	0.04	00	00	00	5046	00
38	CONGENITAL ANOMALY	00	00	00	8370	00	00	00	00	5046	00
39	NOTIFIABLE DISEASES	00	00	00	8370	00	00	00	00	5046	00
40	MISC CASES	506	1304	1810	8370	21.62	493	502	995	5046	19.71

3. The above is for your information please.

Dr (Lt Col) B Subha
Manager & HoD (Med)
for IREL (India) Limited / OSCOM

Copy: Internal (Disease Profile File)//RKP

To,
Shri PK Mishra
DGM (Tech Services) & MR

IREL (India) Limited

Six Monthly Compliance Report (April 2026 to September 2026)

Ref: Details of Afforestation & Green belt Development

YEAR	Area mined (Ha)	Area planted in, (Ha)			No. of trees Planted		
		Mined out area	Others (Plant & colony)	Total	Mined out area	Others (Plant & colony)	Total
1987-88	4.0	7.0	--	7.0	14,000	--	14,000
1988-89	5.0	10.0	--	10.0	20,000	--	20,000
1989-90	8.0	7.5	--	7.5	15,000	--	15,000
1990-91	6.0	3.0	--	3.0	6,000	--	6,000
1991-92	12.0	8.5	--	8.5	16,500	--	16,500
1992-93	8.0	14.5	--	14.5	29,000	--	29,000
1993-94	6.67	9.88	--	9.88	25,000	--	25,000
1994-95	12.92	8.23	3.0	11.23	40,000	8,500	48,500
1995-96	16.94	8.5	--	8.5	42,000	--	42,000
1996-97	11.7	8.5	2.0	10.5	40,000	6,000	46,000
1997-98	15.5	8.5	3.0	11.5	40,000	5,000	45,000
1998-99	14.16	9.0	4.4	13.4	45,000	5,000	50,000
1999-2000	12.42	5.0	--	5.0	50,900	--	50,900
2000-2001	20.94	7.5	1.5	9.0	74,800	3,575	78,375
2001-2002	13.12	10.23	--	10.23	80,000	1,959	81,959
2002-2003	14.51	16.8	--	16.8	75,300	--	75,300
2003-2004	17.25	18.5	Avenue plantation	18.5	82,000	400	82,400
2004-2005	26.76	18.0	Avenue plantation	18.0	80,000	500	80,500
2005-2006	21.02	17.0	0.24	17.24	75,600	5,500	81,100
2006-2007	25.2	21.47	0.13	21.6	95,553	5,500	1,01,053
2007-2008	22.11	22.68	--	22.68	1,00,583	229	1,00,812
2008-2009	24.62	16.95	Avenue plantation	16.95	75,130	5,400	80,530
2009-2010	28.45	24.89	--	24.89	1,10,623	--	1,10,623
2010-2011	28.73	13.79	--	13.79	59,482	--	59,482
2011-2012	25.03	18.61	--	18.61	84,523	--	84,523
2012-2013	26.55	16.0	0.5	16.5	60,674	640	61,314
2013-2014	24.86	10	--	10	62,870	--	62,870
2014-2015	35.42	20	0.12	20.12	54,500	300	54,800
2015-2016	32.78	22	0.5	22.5	54,000	500	54,500
2016-2017	29.44	32	Avenue plantation	32.0	80,000	200	80,200
2017-2018	33.32	16	--	16	40,600	--	40,600
2018-2019	63.94	22	0.1	22.1	54,900	200	55,100
2019-2020	24.28	23	0.6	24.88	56000	600	56,600
2020-2021	22.5	20.23	1.53	21.76	50,000	3800	53,800
2021-2022	20.44	20.44	.....	20.44	50,500	.....	50,500
2022-2023	30.35	30.35	.....	30.35	75,500	.....	75,500
2023-2024	40.46	40.46	1.0	41.46	100500	1000	101500
2024-2025	40.46	40.46	----	----	----	----	100000
2025-2026	52.60	52.60	0.0	52.60	1,30,000	--	1,30,000

IREL (India) Limited

Six Monthly Compliance Report (April 2026 to September 2026)

Ref: Details of Raw Materials used, Production & Waste Generation from OSCOM & REEP during the period: **April 2026 to September 2026**.

A. List of the raw materials used for OSCOM & REEP

Sl.No.	*Description*		*During* April - 2026 to September- 2026
1	**Mining**		
1.1	Raw sand, t	(For production of upgraded heavy minerals consisting of ilmenite, rutile, zircon, sillimanite, RE Mineral, garnet etc.)	30,32,348
2	**MSP**		
2.1	Furnace oil, KL	(For production of ilmenite, rutile, zircon, sillimanite, garnet etc.)	3237.119
2.2	Sodium chloride, Kg	(For production of sillimanite)	2100
2.3	Soda ash, Kg	-do-	6285
2.4	Sodium silicate, Kg	-do-	6800
2.5	Oleic acid, Kg	-do-	5590
3	**REEP & Boiler**		
3.1	RE mineral, t	For processing & production total products in REEP	2525
3.2	Hydrochloric acid (~30% w/w), t	For production of Rare earths chloride etc.	3483.10
3.3	Barium chloride, Kg	For production of Rare earths (RE) chloride.	25.5
3.4	Sodium sulphide, Kg		26.5
3.5	Magnesium Sulphate, Kg		25.5
3.6	Iron powder, Kg		11.4
3.7	Sodium sulphate, Kg	For TSP production	25.55
3.8	Caustic lye, t	For production Rare earths chloride, Tri-sodium Phosphate etc.	4142.2
3.9	RE Mineral Oxalate, t	For production of RE mineral Nitrate	NIL
3.10	Nitric acid, t		13.79
3.11	Soda ash, t		42

Sl.No.	*Description*		*During* April-2026 to September-2026
3.12	Hydrogen peroxide, Kg	For solvent extraction purpose	150
3.13	Alamine, Ltr		200
3.14	Oxalic acid, t		13.45
3.15	Flocculants, Kg (Flomine & Kemfloc)		0.550
3.16	Tri-n-butyl phosphate(TBP), Kg		200
3.17	Petrofin, Ltr		3200
3.18	Isodecanol, Ltr		100
3.19	Ammonia, Kg		1450
3.20	EDTA, Kg		116
3.21	DTPA, Kg		100
3.22	Hydrochloric acid (~30% w/w), t	For DM Plant	6480
3.23	Sodium hydroxide, t		5400
3.24	Coal, t	For steam generation	17065

B. Production

(During the period April 2026 to September 2026):

Sl.No	Description	Quantity						
OSCOM								
MINING		**Apr'26**	**May'26**	**Jun'26**	**Jul'26**	**Aug'26**	**Sep'26**	**TOTAL (t)**
1.	Heavy Mineral Output, t	**41,393**	**48,990**	**41,558**	**58,464**	**48,992**	**51,228**	**2,90,625**
MSP								
1	Ilmenite, t	**23530**	**25670**	**25037**	**29465**	**25035**	**11901**	**140638**
2	Rutile, t	**827**	**879**	**882**	**1044**	**1031**	**481**	**5144**
3	Sillimanite, t	**1041**	**1578**	**1352**	**2049**	**1816**	**831**	**8667**
4	Zircon, t	**580**	**608**	**429**	**882**	**921**	**417**	**3837**
5	RE Mineral, t	**286**	**313**	**274**	**304**	**304**	**139**	**1620**
6	Garnet, t	**5671**	**6078**	**6242**	**8730**	**8961**	**7217**	**42899**
REEP								
1.	Tri Sodium Phosphate, t	**460**	**476**	**426**	**420**	**502**	**492**	**2776**
2.	Rare Earths Chloride, t	**375**	**428**	**485**	**354**	**472**	**465**	**2579**

C. Solid Waste & Radioactive Waste generation:

(During the period April 2026 to September 2026):

Sl. No	Description	Quantity	Disposal activity
OSCOM			
MINING	Tails generated, t	27,41,723	For back filling.
MSP	Subgrade minerals, t	MSP: 65331 HUS: 118495	For processing by downstream industries
REEP & Boiler			
1.	ETP cake, t	31.0	Stored inside trenches as per AERB.
2.	Iron Carbonate cake, t	18.24	
3.	Lead Barium cake, t	421.6	
4.	Insoluble Muck cake, t	592.29	
5.	Ash from Boiler, t	6352.94	

HUS: Heavy up gradation section, MSP: Mineral separation plant

D. Liquid Waste generation:

(During the period April 2026 to September 2026):

Sl. No	Description	Quantity	Disposal activity
OSCOM			
MSP	Waste water, m^3	606625	Recycled through pond no.1
REEP & Boiler			
1.	Non-Nitrate Effluent ,m^3	3410	Treated in ETP
2.	Nitrate Effluent, m^3	66.3	Stored in trenches after solar evaporation.