



# 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

ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Company

Email: head.mk@irel.co.in

आईआरईएल एमके/ई एन वी-15/2024/  
IRELMK/ENV-15/2024/

13.11.2024

## The Additional Principal Chief Conservator of Forests

Ministry of Environment, Forest and Climate Change

Regional Office (South-Eastern Zone)

1st and 2nd Floor, Handloom Export Promotion Council

34, Cathedral Garden Road, Nungambakkam, Chennai – 600034

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विषय: मणवालकुरिच्ची, लक्ष्मीपुरम और कोलाचेल गांवों, कलकुलम तालुक, कन्याकुमारी जिला, तमिलनाडु में स्थित मैसर्स आईआरईएल (इंडिया) लिमिटेड, के 7.06 हेक्टेयर के एमएल क्षेत्र के लिए अप्रैल- 2024 से सितंबर - 2024 की अवधि के लिए अर्धवार्षिक अनुपालन रिपोर्ट ।

Sub: Half yearly compliance report for the period from April-2024 to September -2024 for **ML area of 7.06 ha** of M/s IREL (India) Limited, Manavalakurichi located at Manavalakurichi village, Kalkulam Taluk, Kanniyakumari District, Tamil Nadu

संदर्भ: एम ओई एफ और सीसी पत्र सं. जे-11015/61/2011-आईए.॥ दिनांक 06.04.2018

Ref: MoEF & CC letter no. J-11015/61/2011-IA.II dated 06.04.2018

महोदय Sir,

हम अप्रैल - 2024 से सितंबर - 2024 तक की अवधि के लिए अर्धवार्षिक अनुपालन रिपोर्ट अनुबंध-I के रूप में प्रस्तुत करते हैं। हमारे 7.06 हेक्टेयर खनन पट्टा क्षेत्र के लिए प्रासंगिक निगरानी रिपोर्ट अनुबंध-I के रूप में संलग्न हैं। यह आपके सादर सूचनार्थ है।

We are submitting the Half Yearly Compliance report for the period from April-2024 to September-2024 as Annexure - I. Relevant monitoring reports are enclosed as Annexure-II for our mining lease area of 7.06 ha. This is for your kind information please.

धन्यवाद, Thanking you,

भवदीय, Yours truly,  
आईआरईएल(इंडिया)लिमिटेड के लिए  
For IREL (India) Limited

मुख्य महाप्रबंधक एवं प्रधान, एमके  
Chief General Manager & Head, MK

संलग्न/ Encl : i. Compliance report (Annexure – I) i. अनुपालन रिपोर्ट (अनुबंध- I)  
ii. Monitoring reports (Annexure – II) ii. निगरानी रिपोर्ट (अनुबंध- II)

मणवालकुरिच्ची, कन्याकुमारी जिला, तमिलनाडु - 629 252.

Manavalakurichi, Kanyakumari Dist, Tamil Nadu - 629 252.

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.

फोन / Tel. : 022 - 2421 1630 / 2438 2042 फैक्स / Fax : 022 - 2422 0236

1. सलाहकार

पर्यावरण प्रभाव आकलन प्रभाग (आईए)  
भारत सरकार, एमओईएफ और सीसी  
इंदिरा पर्यावरण भवन, अलीगंज, जोरबाग रोड  
नई दिल्ली-110003

**The Adviser**

Environmental Impact Assessment Division (IA)  
Government of India, MoEF & CC  
Indira Paryavaran Bhawan, Aliganj, Jorbagh Road  
New Delhi-110003

For Kind Information

2. सदस्य सचिव

तमिलनाडु प्रदूषण नियंत्रण बोर्ड  
76, माउंट सालाई, गिंडी, चेन्नई-600032

**The Member Secretary**

Tamil Nadu Pollution Control Board  
76, Mount Salai, Guindy, Chennai-600032

For Kind Information



HALF YEARLY COMPLIANCE REPORT(APRIL-2024 to SEPTEMBER-2024)MINING LEASE: G.O.3 (D) No.6 DATE: 28.01.2000/ G.O. 327 dated 01.12.2021;AREA: 7.06 HECTAREENVIRONMENTAL CLEARANCE ORDER: J-11015/61/2011-IA.II DATED: 06.04.2018

Sl.	Conditions	Compliance
<b>A</b>	<b>Specific Conditions</b>	
1	This Environmental clearance is granted subject to outcome of Hon'ble Supreme Court of India, Hon'ble High Court of Tamilnadu, Hon'ble NGT or any other Court of Law, if any, as may be applicable to this project.	Directions of Hon'ble Supreme Court of India, Hon'ble High Court of Tamilnadu, Hon'ble NGT or any other Court of Law if applicable to this project, will be implemented.
2	In Inter-tidal zone, only manual mining operations shall be carried out deploying persons using baskets and hand spades for collection of ore or minerals as per the approved mining plan.	Only manual mining is carried out in the inter-tidal zone as per approved Mining Plan by deploying persons using baskets and hand spades.
3	No mining activities will be allowed in forest area, if any, for which the Forest Clearance is not available.	Forest lands are not available within mining lease hold area.
4	The Environmental Clearance is subject to obtaining requisite NBWL Clearance, if any, from the Standing Committee of National Board for Wildlife for Mining project.	Not applicable
5	The project Proponent shall obtain Consent to Operate from the State Pollution Control Board, Tamilnadu and effectively implement all the conditions stipulated therein.	Consent to operate for the production of beach sand minerals viz. Ilmenite, Rutile, Zircon, Monazite, Garnet and Sillimanite has been obtained from TNPCB and the stipulated conditions are implemented.
6	The recommendations of the Tamilnadu State Coastal Zone Management Authority (TNSCZMA) forwarded vide their letter dated 08.01.2018 shall be implemented. The recommendations, inter-alia, are (i) The Project Proponent shall not use any explosives for the mining. No blasting or drilling for mining shall be carried out. (ii) PP shall ensure that the mining activity does not lead to beach erosion. Adequate measures shall be undertaken to avoid least disturbance in the inter-tidal zone. (iii) The unit shall ensure that the mined area is refilled with the tailings. The aesthetic appeal of the beaches should be retained by avoiding artificial sand dunes of greater heights. (iv) The beach profile shall be monitored periodically with the maintenance of relevant records / measurements / details so as to take appropriate remedial action on the event of any adverse impacts. (v) There should not be any sea water intrusion due to the project activities and periodical water quality monitoring shall be conducted and (vi) The unit shall not establish new mineral separation	The Recommendations of TNSCZMA vide letter dated 08.01.2018 are implemented. (i) The method of mining adopted by IREL, Manavalakurichi does not require any blasting or drilling activities. Hence, no explosives are used in the mining operations. (ii) Only Manual mining in the inter-tidal zone is undertaken in a sustainable manner where replenishment of beach sand minerals has been occurring due to littoral wave action. Mining operations are carried out in a systematic manner to avoid disturbance in the intertidal zone. All the mining operations are undertaken as per the approved mining plan. (iii) The inland mined out area is refilled with tailings generated out of the ROM collected from this ML area. (iv) The beach profile monitoring is carried out and the relevant records are maintained. (v) There is no chance of any sea water intrusion due to IREL mining activities,



Sl.	Conditions	Compliance
	plant/processing unit within CRZ areas and also there should not be any expansion of existing mineral separation plant / processing unit.	however periodical water quality monitoring is conducted. (vi) IREL, Manavalakurichi will not establish any new mineral separation plant/processing unit within CRZ areas. There will not be any expansion of the existing Mineral Separation plant/ processing unit.
7	The private patta lands which are not owned by M/s. IREL, mining will be carried out only after obtaining the consents from the concerned land owners as per the provisions of the Atomic Mineral Concession Rules 2016 and MMDR Act, 1957.	The entire 7.06 hectares ML area is an un-surveyed sea-beach poromboke Government land. Hence not applicable.
8	During mining operations, the village built up areas, roads, human settlement areas shall not be disturbed.	No built up areas, roads and human settlements are available within the ML area.
9	The tailing will be backfilled only in the Mined out area.	Mining operations are carried out over 7.06 hectares ML area, which is a replenishable area. The replenishable areas are not backfilled.
10	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 under the Atomic Energy (Radiation Protection) Rules, 2004 for operation of Beach Sand Minerals facility. Present AERB clearance is valid upto 31.08.2029.
11	Occupational health and safety measures, especially concerning radiation to be enhanced for workers who are having some ailments like hypertension, diabetes etc. They should have health check up once in six months.	Medical check up is carried out for radiation workers once in six months.
12	Project Proponent shall run an awareness campaign on sanitation for women and utilization of Sanitary napkin and also to distribute the Sanitary Napkin/pads to the women and provide the training for proper disposal.	Awareness campaign on sanitation for women and utilization of Sanitary Napkins has been carried out.
13	Identification of sand dunes shall be done prior to undertaking mining activities and their conservation shall as per MoEF guidelines from time to time. No flattening 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 submersion/flooding.	The entire ML area is located within the intertidal zone. No sand dunes/ hills/ natural features, etc. are available within the ML Area. Hence, not applicable.
14	Tailings 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	Mining operations are carried out systematically in a sustainable manner as per the approved mining plans. The replenishable areas are not backfilled. No Afforestation is carried out over 7.06 hectares ML area as it is a



Sl.	Conditions	Compliance
	suitable species on mined out areas to prevent erosion of shoreline. Under no circumstance, the tailings will be dumped in agricultural lands, wet lands, paddy field, canals and the backfilling will be carried out only in the inland mined out areas.	replenishable zone. The tailing generated after separation of atomic minerals from BSM ore are used for backfilling the mined out areas and under no circumstances, these tailing will be dumped in agricultural lands, wet lands, paddy field and canals.
15	The mining activities shall be regulated in such a way that there will be minimum disturbance to the fauna during spawning and breeding period i.e. from November to March.	Mining operations do not affect any fauna during spawning & breeding period.
16	Mining shall be carried out in phases only. Simultaneous opening of entire beach front is not permissible. There shall be uninterrupted access to the seafront. Minimum 20m width of approach roads shall be provided where necessary.	Mining operations are carried out in phases only. Permanent approach roads to seafront are already available. Also, temporary approach roads with adequate width are provided wherever necessary.
17	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.	Mining is carried out by permitted methods as per approved mining plan. No explosives are used. The mining operations are progressed in parallel to sea coast and manual mining operations are carried out as per the approved mining plan in the intertidal zones. The inland water table is not disturbed due to IREL manual mining operations.
18	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 radioactive minerals.	In order to ascertain the effects of radioactive minerals, radiation survey is carried out at regular intervals by Health Physics Unit (HPU), an independent organisation under Bhabha Atomic Research Centre of Department of Atomic Energy. <b>(Annexure-II, sl. no.1)</b>
19	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, Forest & Climate Change, its Regional Office, Chennai, Central Groundwater Authority, Regional Director, Central Groundwater Board, State Pollution Control Board and Central Pollution Control Board.	Regular monitoring of water quality is carried out. The record of the monitoring data are submitted to the MoEF&CC, Regional Office, Chennai, Central Ground Water Authority, Regional Director, Central Groundwater Board, State Pollution Control Board and Central Pollution Control Board at regular intervals. <b>(Annexure-II, Sl no.2)</b>
20	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.	Final Mine Closure Plan along with details of Corpus Fund will be submitted to MoEF&CC 5 years in advance, while seeking approval for final mine closure.
<b>B</b>	<b>Standard Conditions</b>	
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.	Mining technology and scope of working will be not changed without prior approval of MoEF&CC.



2	No change in the calendar plan including excavation, quantum of beach sand mineral i.e. Ilmenite, Rutile, Zircon, Monazite, Sillimanite and Garnet and waste should be made	Will be adhered to.
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.	There is no requirement of water for mining operations over 7.06 hectares ML area. Hence, not applicable.
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).	Mining operations are carried out as per mining plan approved by AMD and the guidelines of DGMS.
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, 2016 and MMDR Act, 1957.	The entire 7.06 hectares ML area is an un-surveyed sea-beach poromboke Government land. Hence, not applicable
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.	Digital processing of the entire lease area using remote sensing technique will be carried out regularly once in three years and will be submitted to MoEF & CC and its Regional Office.
7	The critical parameters as per the Notification 2009 such as PM <sub>10</sub> , PM <sub>2.5</sub> , NO <sub>x</sub> , and SO <sub>x</sub> , etc. in the ambient air within impact zone, peak particle velocity at 300 m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall be monitored [(TDS, DO, PH and Total Suspended solids (TSS)]. The monitored data shall be uploaded on the website 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.	The ambient air qualities, Stack emission & Sewage water are monitored periodically by TNPCB approved Agency. There is no discharge of water due to mining operations. The ROM collected from 7.06 Hectares ML area is transported to the MSP located adjacent to ML boundary towards mineral beneficiation plant. The water use in Mineral Beneficiation activities is recycled and there is no direct discharge of water into the environment. The monitored data is displayed on a display board at the main gate of IREL, Manavalakurichi for public. The monitored data is also uploaded in IREL's website along with half yearly EC compliance report. Provisions under the circular No. J-20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change is complied. <b>(Annexure-II, sl. nos. 3, 4 &amp; 6)</b>
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 <sub>10</sub> and PM <sub>2.5</sub> such as haul road, loading point and transfer points. Fugitive dust emissions from all the sources shall be controlled regularly. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Board in this regard. Monitoring of Ambient Air Quality to be carried out based on the notification 2009, as	Regular water sprinkling and cleaning of the haul roads is carried out to control air pollution and dust suppression. Fugitive dust emissions from all the sources are controlled. Monitoring of ambient air qualities are carried out as per the norms. The parameters of Ambient Air Quality are well within the limit prescribed by the Central Pollution Control Board.



	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 Director, Central Ground Water Board.	Regular monitoring of ground water level and quality in four seasons is carried out in and around the mining lease area. Natural water courses or water resources are not obstructed due to IREL Mining operations. The monitoring data is sent regularly to MoEF&CC, Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board. <b>(Annexure-II, sl. nos. 9)</b>
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 an 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 well located in village should be incorporated to ascertain the impact of mining over ground water table.	No springs and nallahs are flowing in the ML area. Natural water bodies or streams which are flowing in and around the villages are not disturbed due to mining operations. There is no obstruction of ground water due to IREL mining operations. However, as desired, regular monitoring of water table in open dug wells located in the adjacent villages is carried out.
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, Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Board.	Regular monitoring of water quality is carried out and the record of monitoring data is submitted to the Ministry of Environment, Forest and Climate Change, Regional Office, Central Ground Water Authority, Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board.
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.	The Biological clock of the villagers will not be disturbed due to the Mining operations of IREL. Illumination is provided only in the work site. Noise levels are regularly monitored & maintained well within the prescribed limits. <b>(Annexure-II, sl. nos. 5, 8)</b>



13	Main haulage road in the mine should be provided with permanent water sprinklers and other roaders should be regularly wetted with water tankers fitted with sprinklers. 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 borne dust; Use of effective sprinkler system to suppress fugitive dust on haul roads and other transport roads shall be ensured.	Haul roads are regularly wetted with water sprinklers. The ROM collected from 7.06 hecta ML area is transported to Mineral Separation Plant located adjacent to ML Boundary for separation of individual minerals. The material transfer points in Mineral Separation Plant are provided with Bag filters to control dust generation.
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 water quality including pH is carried out. The reports are submitted to the Ministry of Environment, Forest and Climate Change, Regional Office on half yearly basis. ( <b>Annexure-II, sl. no.7</b> )
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 water resources in the area in consultation with Central Ground Water Board.	Rain water harvesting system is implemented where all the rooftop rain water collected from plant area is stored in a rain water harvesting pond.
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 the slope, bottom of the dumps and top of the dumps are able to sustain these species. The aspect of the dump is also a factor which regulates some climate parameters and allows only species adapted to that micro climate.	Scientific reclamation & systematic afforestation are practised in order to generate greenery. The tailings are dumped to restore the topography over the mined out areas. Native species, viz Casuarina, Coconut, etc. are planted over the backfilled areas.
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 top soil 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 areas 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.	There is no top soil. No overburden is generated during mining operations. Mineralisation occurs right from the surface of the deposit. Mined out areas are backfilled with tailings generated from Mineral Processing followed by systematic plantation to restore the topography. The compliance status is submitted to the Ministry of Environment, Forest and Climate Change, Regional Office, Chennai on half yearly basis.
18	Plantation shall be raised in a 7.5 m wide green belt in the safety zone around the mining lease,	The entire 7.06 hectares ML area is located within the Inter-tidal zone. The replenishment



	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.	occurs within the ML area due to littoral action. Hence, no plantation/ green belt are raised over the mining lease area. ( <b>Annexure-II, sl. no.10</b> )
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 or Habitations and villages are surrounded by the mine lease area", if any, applicable to the project.	The guidelines issued by MoEF & CC vide OM No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014 is followed. As such, there is no village, habituated zones, etc. located within the ML area.
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.	No endangered fauna is available in the study area.
21	At least 2.5% of the total cost of the project shall be earmarked towards the Enterprise Social Commitment (ESC) based on local needs and action plan with financial and physical breakup/details shall be prepared and submitted to the Ministry's Regional Office located at Chennai. Implementation of such program shall be ensured accordingly in a time bound manner.	Mining operations are continuing since 1970. Corporate Social Responsibility activities are carried out as per the provisions of the Companies Act, 2013 and CSR Rules, 2014. CSR fund is always allocated more than 2 % of the net profit of the company. IREL (India) Limited, Manavalakurichi has spent <b>Rs.91.19 lakhs</b> towards implementation of CSR schemes from April-2024 to September-2024. CSR is a regular activity and the action plan is made for meeting the local needs.
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, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Mining Operation over the ML area of 7.06 hectares has been continuing since 1970 and it is not a new project. Hence, not applicable



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.	Mining operations are carried out manually as per the approved mining plan. The manually collected ROM from 7.06 hectares ML area is heaped and then the collected ROM from the heap is transported by trucks to the adjacent Mineral Beneficiation Plant for individual mineral separation. Workers engaged in operations of HEMM are provided with ear plugs/ muffs and the noise levels are maintained below 85 dBA in work environment. <b>(Annexure-II, Sl. no. 8)</b>
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 19 <sup>th</sup> May, 1993 and 31 <sup>st</sup> December, 1993 or as amended from time to time. Oil and grease traps should be installed before discharge of workshop effluents.	No industrial waste water is generated during mining operations.
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.	All persons employed in mines are imparted with trained as per Mines Vocational Training Rules, 1966. Personnel are provided with protective respiratory masks.
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	Environment Management Cell has been constituted and effectively functioning. Unit Head is the Chairman of the Cell. The Environmental parameters for mining and mineral separation activities are regularly reviewed once in every three months by the Environment Management Cell.
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 the Ministry and its Regional Office.	The funds earmarked for environmental protection measures will not be diverted to other purpose. Year wise expenditure towards environmental protection measures (expenditure towards Air sampling, Water sampling, Water sprinkling, Afforestation, PPEs, Bag filters etc.) is enclosed. <b>( Annexure-II, Sl. no. 11)</b>
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.	This project exists since 1970. Hence, not applicable.
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 implementation of the stipulated environmental safeguards in soft copy is submitted to Ministry of Environment, Forest and Climate Change, Regional Office, Central Pollution Control Board and State Pollution Control Board.



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.	IREL, Manavalakurichi extends full cooperation to the Officers of MoEF&CC for monitoring the compliances of the stipulated conditions.
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.	A copy of Clearance letter has been sent to the concerned Panchayats.
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.	Complied.
33	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, Forest and Climate Change at <a href="http://www.environmentclearance.nic.in">www.environmentclearance.nic.in</a> and a copy of the same should be forwarded to the Regional Office.	Information on Environmental Clearance for 7.06 hecta ML area of IREL was published in two local newspapers Dinamani and The New Indian Express on 11.04.2018 and the paper cutting was forwarded to the Regional Office, MoEF&CC, Chennai.

  
 CGM & Head  
 Manavalakurichi Ilmenite Mine  






CIN : U93000TN2000PTC043869

## TEST REPORT

<b>CUSTOMER NAME :</b>		<b>M/S. IREL(India) Limited.,</b> (A Govt of India Undertaking) Manavalakurichi-629 252. Kanyakumari District,Tamil Nadu.		
<b>LOCATION :</b>		<b>Valliyar River</b>		
<b>Sampling Period</b>		<b>April 24 &amp; August 24</b>		
<b>Sample Description By Customer</b>		<b>River Water</b>		
S.No	PARAMETERS	UNITS	MONTH	
			Apr-24	Aug-24
1	Colour	HU	2	5
2	Odour	-	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable
4	Turbidity	NTU	< 1	4
5	pH @ 25°C	-	7.6	7.3
6	Total Hardness as CaCO <sub>3</sub>	mg/l	93	49
7	Iron as Fe	mg/l	BDL(DL:0.01)	0.25
8	Chloride as Cl <sup>-</sup>	mg/l	50	29
9	Free Residual Chlorine	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
10	Fluoride as F	mg/l	BDL(DL:0.1)	0.12
11	Total Dissolved Solids	mg/l	204	536
12	Calcium as Ca	mg/l	19	100
13	Magnesium as Mg	mg/l	11	16
14	Sulphate as SO <sub>4</sub>	mg/l	15	25
15	Nitrate as NO <sub>3</sub>	mg/l	2.7	6.4
16	Phenolic Compounds as C <sub>6</sub> H <sub>5</sub> OH	mg/l	BDL(DL:0.001)	BDL(DL:0.001)
17	Cyanide as CN	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
18	Anionic detergent as MBAS	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
19	Total Alkalinity as CaCO <sub>3</sub>	mg/l	67	298
20	Boron as B	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
21	Copper as Cu	mg/l	BDL(DL:0.02)	BDL(DL:0.02)
22	Manganese as Mn	mg/l	0.06	BDL (DL:0.01)
23	Mercury as Hg	mg/l	BDL(DL:0.001)	BDL(DL:0.001)
24	Cadmium as Cd	mg/l	BDL(DL:0.002)	BDL(DL:0.002)
25	Selenium as Se	mg/l	BDL(DL:0.005)	BDL(DL:0.005)
26	Total Arsenic as As	mg/l	BDL(DL:0.001)	BDL(DL:0.001)
27	Lead as Pb	mg/l	BDL(DL:0.005)	BDL(DL:0.005)
28	Zinc as Zn	mg/l	BDL(DL:0.08)	BDL(DL:0.08)
29	Aluminium as Al	mg/l	BDL(DL:0.02)	BDL(DL:0.02)
30	Mineral oil	mg/l	Absent	Absent
31	Total Suspended Solids	mg/l	< 2	14
32	Biological Oxygen Demand (BOD 3 days at 27°C)	mg/l	< 2	< 2
33	Chemical Oxygen Demand (COD)	mg/l	< 4	4
34	Hexavalent Chromium as Cr <sup>6+</sup>	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
35	Dissolved Oxygen	mg/l	7.2	6.6
36	Depth of Water	ft	2.1	1.8
<b>Microbiology:</b>				
37	Total Coliform	Per 100ml	Absent	Absent

BDL - Below Detection Limit; DL - Detection Limit

\*\*\*END OF REPORT\*\*\*

For Chennai Testing Laboratory Pvt Ltd

*[Signature]*  
Verified by

*[Signature]*  
Authorised Signatory

Page 1 of 1

**A. RAJKUMAR**  
Head - Water & Soil Division  
(CHEMICAL)

The Report shall not be used to malign, defame and for any malicious purpose.  
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Phone : +91-44-2250 1757 | E-mail : chennaitesting@chennaitestinglab.com www.ctllabs.in



CIN : U93000TN2000PTC043869

## TEST REPORT

Customer Name & Address		M/S. IREL(India) Limited, (A Govt of India Undertaking) Manavalakurichi-629 252 Kanyakumari District,Tamil Nadu.											
Sample Description		Ambient Air Quality											
Sampling Period		April 24- September 24											
Sampling Method		IS 5182 (Part V) and (Part XIV)											
SAMPLE DETAILS		Chennai Testing Laboratory Pvt. Ltd.											
Month & Year	Pollutant / Sample Point	Respirable Suspended		Sulphur dioxide	Oxides of Nitrogen	Ozone	Lead	Carbon monoxide	Ammonia	Arsenic	Nickel	Benzene	Benzo (a) Pyrene
	Pollutant short form	PM2.5	PM10	SO2	NOX	O3	Pb	CO	NH3	As	Ni	C6H6	B(a)P
	*National Ambient Air Quality Standards - CPCB	60	100	80	80	180	1	4	400	6	20	5	1
	Unit	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	ng/m³	ng/m³	µg/m³	ng/m³
Apr-24	TOP OF THE SECURITY TOWER - 6	30.2	64.8	6.9	11.5	52.1	BDL(DL:0.1)	BDL(DL:1.15)	19.2	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE CIVIL DEPARTMENT	25.1	54.8	7.5	15.2	56.7	BDL(DL:0.1)	BDL(DL:1.15)	18.5	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE DISPENSARY	27.2	60.8	11.3	25.7	46.5	BDL(DL:0.1)	BDL(DL:1.15)	21.6	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE SECURITY TOWER - 2	50.1	92.5	7.9	16.1	58.3	BDL(DL:0.1)	BDL(DL:1.15)	19.5	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
May-24	TOP OF THE GUEST HOUSE	24.1	48.2	3.9	7.1	21.3	BDL(DL:0.1)	BDL(DL:1.15)	14.8	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE ADMIN BUILDING	24.6	52.5	5.7	11.9	23.5	BDL(DL:0.1)	BDL(DL:1.15)	16.3	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE FIRE PUMP ROOM	33.9	69.5	10.2	21.8	24.6	BDL(DL:0.1)	BDL(DL:1.15)	18.3	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE CANTEN BUILDING	25.6	54.1	6.5	13.4	22.5	BDL(DL:0.1)	BDL(DL:1.15)	17.7	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
Jun-24	NEAR CHINNAVALAI - RS NO.403	26.2	58.6	4.1	10.4	26.2	BDL(DL:0.1)	BDL(DL:1.15)	21.8	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	NEAR PERIYAVALAI - RS NO. 378	22.8	49.5	5.7	12.3	20.9	BDL(DL:0.1)	BDL(DL:1.15)	16.7	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE SECURITY TOWER - 4	28.7	59.3	7.1	14.0	23.1	BDL(DL:0.1)	BDL(DL:1.15)	17.4	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE CIVIL DEPARTMENT	23.5	48.6	3.9	10.6	19.8	BDL(DL:0.1)	BDL(DL:1.15)	15.5	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
Jul-24	TOP OF THE DISPENSARY	27.2	56.7	9.8	17.1	22.5	BDL(DL:0.1)	BDL(DL:1.15)	20.1	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE SECURITY TOWER - 2	23.1	51.8	7.1	16.2	24.7	BDL(DL:0.1)	BDL(DL:1.15)	18.4	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	NEAR CHINNAVALAI - RS NO.403	21.2	46.5	3.9	9.5	18.6	BDL(DL:0.1)	BDL(DL:1.15)	17.7	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	NEAR PERIYAVALAI - RS NO. 378	22.5	48.3	6.1	13.5	22.8	BDL(DL:0.1)	BDL(DL:1.15)	15.2	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
Aug-24	TOP OF THE GUEST HOUSE	32.8	66.2	5.9	13.5	27.3	BDL(DL:0.1)	BDL(DL:1.15)	16.5	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE ADMIN BUILDING	27.9	62.5	5.6	12.5	26.9	BDL(DL:0.1)	BDL(DL:1.15)	14.4	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE FIRE PUMP ROOM	35.7	78.5	12.2	26.9	28.3	BDL(DL:0.1)	BDL(DL:1.15)	22.4	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE CANTEN BUILDING	26.5	59.3	7.6	15.9	26.7	BDL(DL:0.1)	BDL(DL:1.15)	24.5	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
Sep-24	NEAR CHINNAVALAI - RS NO.403	33.8	71.6	4.2	10.1	28.2	BDL(DL:0.1)	BDL(DL:1.15)	14.6	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	NEAR PERIYAVALAI - RS NO. 378	23.6	50.2	4.9	11.8	24.7	BDL(DL:0.1)	BDL(DL:1.15)	17.4	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE SECURITY TOWER - 6	36.9	75.4	9.6	17.4	34.7	BDL(DL:0.1)	BDL(DL:1.15)	26.9	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE CIVIL DEPARTMENT	26.5	57.4	6.8	14.8	35.1	BDL(DL:0.1)	BDL(DL:1.15)	16.1	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
Sep-24	TOP OF THE DISPENSARY	24.3	52.8	7.1	15.2	33.4	BDL(DL:0.1)	BDL(DL:1.15)	25.6	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE SECURITY TOWER - 4	42.3	81.0	5.5	12.1	38.5	BDL(DL:0.1)	BDL(DL:1.15)	20.1	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	NEAR CHINNAVALAI - RS NO.403	26.9	58.2	4.8	11.3	36.5	BDL(DL:0.1)	BDL(DL:1.15)	13.4	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	NEAR PERIYAVALAI - RS NO. 378	22.1	46.9	3.5	10.4	31.9	BDL(DL:0.1)	BDL(DL:1.15)	15.5	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
Sep-24	TOP OF THE GUEST HOUSE	24.1	52.8	4.2	12.5	30.2	BLQ(LOQ:0.05)	BLQ(LOQ:1.15)	21.6	BLQ(LOQ:1.0)	BLQ(LOQ:2.0)	BLQ(LOQ:1.0)	BLQ(LOQ:0.5)
	TOP OF THE ADMIN BUILDING	28.2	60.8	5.5	13.3	32.4	BLQ(LOQ:0.05)	BLQ(LOQ:1.15)	15.5	BLQ(LOQ:1.0)	BLQ(LOQ:2.0)	BLQ(LOQ:1.0)	BLQ(LOQ:0.5)
	TOP OF THE FIRE PUMP ROOM	35.1	76.5	13.6	29.2	40.8	BLQ(LOQ:0.05)	BLQ(LOQ:1.15)	26.7	BLQ(LOQ:1.0)	BLQ(LOQ:2.0)	BLQ(LOQ:1.0)	BLQ(LOQ:0.5)
	TOP OF THE CANTEN BUILDING	30.1	64.5	7.7	15.3	36.2	BLQ(LOQ:0.05)	BLQ(LOQ:1.15)	24.7	BLQ(LOQ:1.0)	BLQ(LOQ:2.0)	BLQ(LOQ:1.0)	BLQ(LOQ:0.5)
Sep-24	NEAR CHINNAVALAI - RS NO.403	25.5	56.9	6.8	14.1	38.7	BLQ(LOQ:0.05)	BLQ(LOQ:1.15)	19.4	BLQ(LOQ:1.0)	BLQ(LOQ:2.0)	BLQ(LOQ:1.0)	BLQ(LOQ:0.5)
	NEAR PERIYAVALAI - RS NO. 378	23.1	48.7	4.1	11.2	35.5	BLQ(LOQ:0.05)	BLQ(LOQ:1.15)	18.2	BLQ(LOQ:1.0)	BLQ(LOQ:2.0)	BLQ(LOQ:1.0)	BLQ(LOQ:0.5)

\*National Ambient Air Quality Standards - CPCB  
BDL - Below Detection Limit(DL - Detection Limit)

\*\*\*END OF REPORT\*\*\*

Verified by

For Chennai Testing Laboratory  
Authorized Signatory

**G. MANIKANDAN**  
Head - Environment Division  
(CHEMICAL)

Page 1 of 1

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CIN : U93000TN2000PTC043869

## TEST REPORT

Customer Name & Address		M/S. IREL(India) Limited., (A Govt of India Undertaking) Manavalakurichi-629 252,Kanyakumari District,Tamil Nadu.				
SAMPLE DETAILS						
Sample Description		Stack Emission Monitoring				
Sampling Period		April 2024-September 2024				
Sampling Method		IS 11255		Sampled By	Chennai Testing Laboratory Pvt. Ltd.,	
Month	Pollutant / Sample Point	Oxides of nitrogen	Sulphur dioxide	Conc. of Particulate Matter	Carbon monoxide	SUSPENDED PARTICULATE MATTER
	Pollutant short form	NOX	SO2	PM	CO	(SPM)
	Limit	Not specified	Not specified	150	Not specified	Not specified
	Unit	mg/Nm <sup>3</sup>	mg/Nm <sup>3</sup>	mg/Nm <sup>3</sup>	mg/Nm <sup>3</sup>	mg/Nm <sup>3</sup>
Apr-24	22 TPH FBD CHIMNEY	55	140	59.7	BDL(DL:0.2)	116
	GARNET SD NO.701 CHIMNEY	10	4	33.8	BDL(DL:0.2)	74
	ILMENITE SD NO.351 CHIMNEY	13	BDL(DL:3.0)	32.5	BDL(DL:0.2)	76
	ZIRCON SD NO.851 CHIMNEY	17	BDL(DL:3.0)	22.7	BDL(DL:0.2)	68
	RUTILE SD NO.401 CHIMNEY	17	BDL(DL:3.0)	51.4	BDL(DL:0.2)	110
	2 TPH FBD CHIMNEY	10	BDL(DL:3.0)	27.4	BDL(DL:0.2)	66
May-24	22 TPH FBD CHIMNEY	48	164	62.7	BDL(DL:0.2)	126
	GARNET SD NO.701 CHIMNEY	12	5	35.9	BDL(DL:0.2)	81
	ILMENITE SD NO.351 CHIMNEY	16	BDL(DL:3.0)	34.1	BDL(DL:0.2)	82
	ZIRCON SD NO.851 CHIMNEY	14	BDL(DL:3.0)	25.2	BDL(DL:0.2)	74
	RUTILE SD NO.401 CHIMNEY	15	BDL(DL:3.0)	47.7	BDL(DL:0.2)	97
	2 TPH FBD CHIMNEY	9	BDL(DL:3.0)	26.5	BDL(DL:0.2)	59
Jun-24	DG 1000KVA	274	BDL(DL:3.0)	55.3	BDL(DL:0.2)	112
	22 TPH FBD CHIMNEY	52	149	61.5	BDL(DL:0.2)	119
	GARNET SD NO.701 CHIMNEY	15	7	37.2	BDL(DL:0.2)	88
	ILMENITE SD NO.351 CHIMNEY	14	BDL(DL:3.0)	31.5	BDL(DL:0.2)	77
	ZIRCON SD NO.851 CHIMNEY	15	BDL(DL:3.0)	23.2	BDL(DL:0.2)	70
	RUTILE SD NO.401 CHIMNEY	14	BDL(DL:3.0)	50.6	BDL(DL:0.2)	88
Jul-24	2 TPH FBD CHIMNEY	11	BDL(DL:3.0)	28.2	BDL(DL:0.2)	64
	DG 1000KVA	259	BDL(DL:3.0)	53.7	BDL(DL:0.2)	120
	22 TPH FBD CHIMNEY	36	128	41.2	BDL(DL:0.2)	88
	GARNET SD NO.701 CHIMNEY	13	6	34.2	BDL(DL:0.2)	79
	ILMENITE SD NO.351 CHIMNEY	25	BDL(DL:3.0)	35.8	BDL(DL:0.2)	84
	ZIRCON SD NO.851 CHIMNEY	13	BDL(DL:3.0)	21.8	BDL(DL:0.2)	67
Aug-24	RUTILE SD NO.401 CHIMNEY	11	BDL(DL:3.0)	46.5	BDL(DL:0.2)	72
	2 TPH FBD CHIMNEY	8	BDL(DL:3.0)	25.2	BDL(DL:0.2)	58
	DG 1000KVA	182	BDL(DL:3.0)	42.7	BDL(DL:0.2)	88
	22 TPH FBD CHIMNEY	44	137	38.6	BDL(DL:0.2)	81
	GARNET SD NO.701 CHIMNEY	11	7	36.9	BDL(DL:0.2)	71
	ILMENITE SD NO.351 CHIMNEY	19	BDL(DL:3.0)	32.1	BDL(DL:0.2)	69
Sep-24	ZIRCON SD NO.851 CHIMNEY	16	BDL(DL:3.0)	24.1	BDL(DL:0.2)	62
	RUTILE SD NO.401 CHIMNEY	15	BDL(DL:3.0)	48.2	BDL(DL:0.2)	85
	2 TPH FBD CHIMNEY	10	BDL(DL:3.0)	27.9	BDL(DL:0.2)	61
	DG 1000KVA	194	BDL(DL:3.0)	46.2	BDL(DL:0.2)	97
	22 TPH FBD CHIMNEY	51	166	68.9	BLQ(LOQ:0.2)	138
	GARNET SD NO.701 CHIMNEY	14	9	38.3	BLQ(LOQ:0.2)	77
	ILMENITE SD NO.351 CHIMNEY	23	BLQ(LOQ:3.0)	34.7	BLQ(LOQ:0.2)	73
	ZIRCON SD NO.851 CHIMNEY	14	BLQ(LOQ:3.0)	22.6	BLQ(LOQ:0.2)	65
	RUTILE SD NO.401 CHIMNEY	18	BLQ(LOQ:3.0)	52.6	BLQ(LOQ:0.2)	94
	2 TPH FBD CHIMNEY	12	BLQ(LOQ:3.0)	24.9	BLQ(LOQ:0.2)	56
	DG 1000KVA	179	BLQ(LOQ:3.0)	44.5	BLQ(LOQ:0.2)	93

BDL- Below Detection Limit, D.L-Detection Limit,

\*\*\*END OF REPORT\*\*\*

Verified by

For Chennai Testing Laboratory

Authorized Signatory

Page 1 of 1

**G. MANIKANDAN**  
Head - Environment Division  
(CHEMICAL)

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CIN : U93000TN2000PTC043869

## TEST REPORT

Customer Name & Address				M/S. IREL(India) Limited, (A Govt of India Undertaking) Manavalakurichi-629 252,Kanyakumari District,Tamil Nadu.											
SAMPLE DETAILS															
Sample Description				ILLUMINATION											
Sampling Period				April 2024- June2024											
Sampled By				Chennai Testing Laboratory Pvt. Ltd.,											
Month				Apr-24				May-24				Jun-24			
S.NO	LOCATION	Minimum Standards of illumination to be Provided(In Lux)*		ILLUMINATION (In LUX)											
				Day Time		Night Time		Day Time		Night Time		Day Time		Night Time	
		Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
1	BUNKER - MSP	15	-	18740	17400	208	146	11600	4640	215	153	10690	5270	172	128
2	HUP YARD	15	-	3450	1027	125	93	2371	681	130	89	14380	6927	112	77
3	TIPPER	50	-	396	265	283	337	280	195	318	356	296	202	265	312
4	HUP YARD RAMP	10	-	118295	22486	255	143	31200	14500	236	158	52300	16678	219	147
5	GUEST HOUSE ROAD	10	-	126495	27415	164	77	31482	14962	155	84	51475	16121	127	79
6	MAIN GATE ENTRY	10	-	129718	28992	147	81	32378	15475	169	78	51782	16457	155	72
7	SPILLAGE CLEANING OF MSP	50	-	1209	1100	176	84	405	208	156	81	240	131	136	65
8	CONVEYORS -MSP BC 101	40	-	289	196	114	93	269	98	121	98	148	49	116	84
9	CONVEYORS -MSP BC 102	40	-	3895	2089	269	142	342	133	276	154	428	136	253	132
10	MSP-22 TPH FBD	50	-	3477	1625	186	135	1071	468	194	142	731	570	166	118
11	MSP-MONAZITE SAND HEATER	50	-	279	154	308	184	168	140	316	191	174	136	259	164
12	MSP-ILMENITE SHAFT DRIER	50	-	294	268	264	177	254	219	271	184	149	127	233	155
13	MSP-GARNET SCREEN	50	-	325	257	283	165	357	188	294	173	298	162	281	174
14	VALLIYAR PUMP HOUSE	40	-	210	140	78	52	372	193	69	50	94	69	64	48
15	11 KV SUBSTATION	100	50	226	107	155	123	142	79	129	116	136	64	115	98
16	DISPENSARY	50	-	365	194	202	141	239	156	198	136	161	128	174	129
17	PERIYAVILLAI BEACH	30	-	127428	28327	288	510	32485	15326	265	480	53809	16270	232	465
18	ELECTRICAL SECTION	100	50	825	519	247	175	601	254	239	168	651	327	215	141
19	ZIRCON BAGGING	50	-	186	127	171	108	186	133	164	101	118	89	157	95
20	SPIRAL DISTRIBUTOR	40	-	710	315	265	284	628	312	248	291	596	282	235	282

\*\*\*END OF REPORT\*\*\*



Verified by

For Chennai Testing Laboratory



Authorized Signatory

Page 1 of 1

**G. MANIKANDAN**  
Head - Environment Division  
(CHEMICAL)

The Report shall not be used to malign, defame and for any malicious purpose.  
The Report is meant only for sole use of the addressee to promote his/her own business.

A - Super 19, T.V.K. Industrial Estate, Guindy, Chennai - 600 032, Tamil Nadu - India

Phone : +91-44-2250 1757 | E-mail : chennaiesting@chennaiestinglab.com www.ctllabs.in



CIN : U93000TN2000PTC043869

## TEST REPORT

Customer Name & Address				M/S. IREL(India) Limited., (A Govt of India Undertaking) Manavalakurichi-629 252,Kanyakumari District,Tamil Nadu.											
				SAMPLE DETAILS											
Sample Description				ILLUMINATION											
Sampling Period				July 24-September 24											
Sampled By				Chennai Testing Laboratory Pvt. Ltd.,											
Month				Jul-24				Aug-24				Sep-24			
S.NO	LOCATION	Minimum Standards of illumination to be Provided(In Lux)*		ILLUMINATION (In LUX)											
				Day Time		Night Time		Day Time		Night Time		Day Time		Night Time	
		Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
1	BUNKER - MSP	15	-	12557	5270	164	121	18515	10350	173	115	23878	18015	186	139
2	HUP YARD	15	-	16728	6927	123	75	2475	959	146	81	6325	2196	116	88
3	TIPPER	50	-	375	296	288	364	412	263	269	355	312	191	275	325
4	HUP YARD RAMP	10	-	48294	16678	226	158	91765	27328	310	169	88597	45725	268	157
5	GUEST HOUSE ROAD	10	-	47992	16121	135	74	96846	31425	128	66	89721	46881	173	81
6	MAIN GATE ENTRY	10	-	49728	16457	161	78	95607	30984	155	69	89552	46772	133	72
7	SPILLAGE CLEANING OF MSP	50	-	506	276	144	72	168	125	137	55	4102	2378	169	74
8	CONVEYORS -MSP BC 101	40	-	195	65	121	93	210	84	145	88	336	212	102	88
9	CONVEYORS -MSP BC 102	40	-	552	147	264	148	665	218	253	135	2728	1973	256	135
10	MSP-22 TPH FBD	50	-	752	366	180	125	288	245	172	118	589	241	173	121
11	MSP-MONAZITE SAND HEATER	50	-	191	164	288	177	186	123	265	153	301	168	315	202
12	MSP-ILMENITE SHAFT DRIER	50	-	207	179	256	149	165	118	229	137	385	242	248	191
13	MSP-GARNET SCREEN	50	-	325	144	294	183	274	169	312	194	328	296	237	144
14	VALLIYAR PUMP HOUSE	40	-	88	64	72	56	135	83	78	61	182	135	82	55
15	11 KV SUBSTATION	100	50	125	59	119	92	277	163	126	84	282	245	136	112
16	DISPENSARY	50	-	183	135	183	136	246	218	174	129	329	256	188	129
17	PERIYAVILLAI BEACH	30	-	46559	16270	265	512	97585	60378	248	497	91127	50265	273	438
18	ELECTRICAL SECTION	100	50	598	294	228	153	447	249	210	144	799	436	235	181
19	ZIRCON BAGGING	50	-	188	123	166	102	325	164	157	98	246	172	164	120
20	SPIRAL DISTRIBUTOR	40	-	553	296	247	305	716	315	264	317	772	341	276	298

\*\*\*END OF REPORT\*\*\*

  
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For Chennai Testing Laboratory

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Page 1 of 1

**G. MANIKANDAN**  
Head - Environment Division  
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# ACCURACY ANALABS

(NABL Accreditation Laboratory)

(An ISO 9001: 2015 Certified Laboratory)



TC-6429

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19/04/24

## CHEMICAL TEST REPORT

WASTE WATER ANALYSIS							
Report No		TC642923000000011F		Report Date		15.04.2024	
<b>Customer Name &amp; Address:</b>  M/s.Indian Rare Earths Limited, (A Government of India Undertaking) Manavalakurichi - 629 252. Kanyakumari (Dt).				Sample Ref. No.		AALWR/11/24-25	
				Sample Description		STP Treated Water	
				Sample Drawn By		Customer	
				Sample condition		Fit For Analysis	
				Sample Collected Date		10.04.2024	
				Quantity of Sample		2 Liters	
				Sample Received on		11.04.2024	
				Test Commenced on		12.04.2024	
				Test Completed on		15.04.2024	
Sl. No.	PARAMETER(s)		TEST METHOD		UNIT	TNPCB NORMS	RESULT
1	pH @25°C		IS 3025 Part 11 :1983		-	5.5 to 9.0	3.11
2	Total Suspended Solids @105°C		IS 3025 Part 17 :1984		mg/l	30	4.5
3	Chemical Oxygen Demand ( COD )		IS 3025 Part 58 :2006		mg/l	100	43.5
4	Biological Oxygen Demand ( BOD )@27°C for 3 days		IS 3025 Part 44 :1993		mg/l	20	2.8

Note: All above Parameters within the Acceptable Limits.

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TC-6429

**CHEMICAL TEST REPORT**

WASTE WATER ANALYSIS					
Report No	TC64292300000015F		Report Date	10.05.2024	
<b>Customer Name &amp; Address:</b> M/s. Indian Rare Earths Limited, (A Government of India Undertaking) Manavalakurichi - 629 252. Kanyakumari (Dt).			Sample Ref. No.	AAL/WR/15/24-25	
			Sample Description	STP Treated Water	
			Sample Drawn By	Customer	
			Sample condition	Fit For Analysis	
			Sample Collected Date	06.05.2024	
			Quantity of Sample	2 Liters	
			Sample Received on	07.05.2024	
			Test Commenced on	07.05.2024	
			Test Completed on	10.05.2024	
Sl. No.	PARAMETER(s)	TEST METHOD	UNIT	TNpcb NORMS	RESULT
1	pH @25°C	IS 3025 Part 11 :1983	-	5.5 to 9.0	3.52
2	Total Suspended Solids @105°C	IS 3025 Part 17 :1984	mg/l	30	4.8
3	Chemical Oxygen Demand ( COD )	IS 3025 Part 58 :2006	mg/l	100	48.6
4	Biological Oxygen Demand ( BOD )@27°C for 3 days	IS 3025 Part 44 :1993	mg/l	20	2.4

Note: All above Parameters within the Acceptable Limits.

*P. S. S.*  
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*P. S. S.*  
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20/5/24  
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TC-6429

**CHEMICAL TEST REPORT**

WASTE WATER ANALYSIS					
Report No	TC642923000000042F		Report Date	10.06.2024	
<b>Customer Name &amp; Address:</b>  M/s. Indian Rare Earths Limited, (A Government of India Undertaking) Manavalakurichi - 629 252. Kanyakumari (Dt).			Sample Ref. No.	AALWR/42/24-25	
			Sample Description	STP Treated Water	
			Sample Drawn By	Customer	
			Sample condition	Fit For Analysis	
			Sample Collected Date	05.06.2024	
			Quantity of Sample	2 Liters	
			Sample Received on	06.06.2024	
			Test Commenced on	07.06.2024	
			Test Completed on	10.06.2024	
Sl. No.	PARAMETER(s)	TEST METHOD	UNIT	TNPCB NORMS	RESULT
1	pH @25 <sup>o</sup> C	IS 3025 Part 11 :1983	-	5.5 to 9.0	7.08
2	Total Suspended Solids @105 <sup>o</sup> C	IS 3025 Part 17 :1984	mg/l	30	5.2
3	Chemical Oxygen Demand ( COD )	IS 3025 Part 58 :2006	mg/l	100	48.9
4	Biological Oxygen Demand ( BOD )@27 <sup>o</sup> C for 3 days	IS 3025 Part 44 :1993	mg/l	20	2.7

Note: All above Parameters within the Acceptable Limits.

  
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TC-6429

CHEMICAL TEST REPORT

20/7/24

WASTE WATER ANALYSIS			
Report No	TC642923000000063F	Report Date	11.07.2024
<b>Customer Name &amp; Address:</b>  M/s. Indian Rare Earths Limited, (A Government of India Undertaking) Manavalakurichi - 629 252. Kanyakumari (Dt).		Sample Ref. No.	AALWR/63/24-25
		Sample Description	STP Treated Water
		Sample Drawn By	Customer
		Sample condition	Fit For Analysis
		Sample Collected Date	08.07.2024
		Quantity of Sample	2 Liters
		Sample Received on	09.07.2024
		Test Commenced on	09.07.2024
		Test Completed on	11.07.2024

Sl. No.	PARAMETER(s)	TEST METHOD	UNIT	TNPCB NORMS	RESULT
1	pH @25°C	IS 3025 Part 11 :1983	-	5.5 to 9.0	7.83
2	Total Suspended Solids @105°C	IS 3025 Part 17 :1984	mg/l	30	6.4
3	Chemical Oxygen Demand ( COD )	IS 3025 Part 58 :2006	mg/l	100	38.7
4	Biological Oxygen Demand ( BOD )@27°C for 3 days	IS 3025 Part 44 :1993	mg/l	20	4.40

Note: All above Parameters within the Acceptable Limits.

J. K.  
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\*\*\* End of Report \*\*\*

Page 1 of 1

R. Srinivasan  
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~~2019/21~~

## CHEMICAL TEST REPORT

## WASTE WATER ANALYSIS

WASTE WATER ANALYSIS			
Report No	TC64292400000089F	Report Date	12.08.2024
Customer Name & Address:  M/s. Indian Rare Earths Limited, (A Government of India Undertaking) Manavalakurichi - 629 252. Kanyakumari (Dt).		Sample Ref. No.	AAL/WR/89/24-25
		Sample Description	STP Treated Water
		Sample Drawn By	Customer
		Sample condition	Fit For Analysis
		Sample Collected Date	07.08.2024
		Quantity of Sample	2 Liters
		Sample Received on	08.08.2024
		Test Commenced on	08.08.2024
		Test Completed on	12.08.2024

Sl. No.	PARAMETER(s)	TEST METHOD	UNIT	TNPCB NORMS	RESULT
1	pH @25°C	IS 3025 Part 11 :1983	-	5.5 to 9.0	7.30
2	Total Suspended Solids @105°C	IS 3025 Part 17 :1984	mg/l	30	5.9
3	Chemical Oxygen Demand ( COD )	IS 3025 Part 58 :2006	mg/l	100	32.5
4	Biological Oxygen Demand ( BOD )@27°C for 3 days	IS 3025 Part 44 :1993	mg/l	20	7.40

Note: All above Parameters within the Acceptable Limits.

K. J. Ham Harry  
CHEMIST



\*\*\* End of Report \*\*\*

*R. Griffin*  
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Page 1 of 1





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TC-6429

24/8/24

**CHEMICAL TEST REPORT**

WASTE WATER ANALYSIS			
Report No	TC6429240000000109F	Report Date	16.09.2024
<b>Customer Name &amp; Address:</b>  M/s. Indian Rare Earths Limited, (A Government of India Undertaking) Manavalakurichi - 629 252. Kanyakumari (Dt).		Sample Ref. No.	AAL/WR/109/24-25
		Sample Description	STP Treated Water
		Sample Drawn By	Customer
		Sample condition	Fit For Analysis
		Sample Collected Date	11.09.2024
		Quantity of Sample	2 Liters
		Sample Received on	12.09.2024
		Test Commenced on	12.09.2024
		Test Completed on	16.09.2024

Sl. No.	PARAMETER(s)	TEST METHOD	UNIT	TNPCB NORMS	RESULT
1	pH @25°C	IS 3025 Part 11 :1983	-	5.5 to 9.0	7.68
2	Total Suspended Solids @105°C	IS 3025 Part 17 :1984	mg/l	30	6.8
3	Chemical Oxygen Demand ( COD )	IS 3025 Part 58 :2006	mg/l	100	14.5
4	Biological Oxygen Demand ( BOD )@27°C for 3 days	IS 3025 Part.44 :1993	mg/l	20	7.89

Note: All above Parameters within the Acceptable Limits.

  
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Page 1 of 1

  
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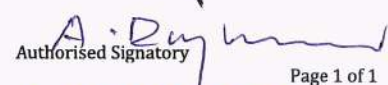
## TEST REPORT

<b>CUSTOMER NAME :</b>		<b>M/S. IREL(India) Limited.,</b> (A Govt of India Undertaking) Manavalakurichi-629 252. Kanyakumari District, Tamil Nadu.		
<b>LOCATION :</b>		<b>IREL Guest House</b>		
<b>Sampling Period</b>		<b>April 24 &amp; August 24</b>		
<b>Sample Description By Customer</b>		<b>Open Well Water</b>		
S.No	PARAMETERS	UNITS	MONTH	
			Apr-24	Aug-24
1	Colour	HU	2	2
2	Odour	-	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable
4	Turbidity	NTU	< 1	< 1
5	pH @ 25°C	-	7.8	7.2
6	Total Hardness as CaCO <sub>3</sub>	mg/l	261	315
7	Iron as Fe	mg/l	0.05	0.03
8	Chloride as Cl <sup>-</sup>	mg/l	87	82
9	Free Residual Chlorine	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
10	Fluoride as F	mg/l	0.10	0.11
11	Total Dissolved Solids	mg/l	474	126
12	Calcium as Ca	mg/l	65	13
13	Magnesium as Mg	mg/l	24	4
14	Sulphate as SO <sub>4</sub>	mg/l	43	4
15	Nitrate as NO <sub>3</sub>	mg/l	7.9	2.3
16	Phenolic Compounds as C <sub>6</sub> H <sub>5</sub> OH	mg/l	BDL(DL:0.001)	BDL(DL:0.001)
17	Cyanide as CN	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
18	Anionic detergent as MBAS	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
19	Total Alkalinity as CaCO <sub>3</sub>	mg/l	219	45
20	Boron as B	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
21	Copper as Cu	mg/l	BDL(DL:0.02)	BDL(DL:0.02)
22	Manganese as Mn	mg/l	BDL (DL:0.01)	0.02
23	Mercury as Hg	mg/l	BDL(DL:0.001)	BDL(DL:0.001)
24	Cadmium as Cd	mg/l	BDL(DL:0.002)	BDL(DL:0.002)
25	Selenium as Se	mg/l	BDL(DL:0.005)	BDL(DL:0.005)
26	Total Arsenic as As	mg/l	BDL(DL:0.001)	BDL(DL:0.001)
27	Lead as Pb	mg/l	BDL(DL:0.005)	BDL(DL:0.005)
28	Zinc as Zn	mg/l	BDL(DL:0.08)	BDL(DL:0.08)
29	Aluminium as Al	mg/l	BDL(DL:0.02)	BDL(DL:0.02)
30	Mineral oil	mg/l	Absent	Absent
31	Total Suspended Solids	mg/l	< 2	< 2
32	Biological Oxygen Demand (BOD 3 days at 27°C)	mg/l	< 2	< 2
33	Chemical Oxygen Demand (COD)	mg/l	< 4	< 4
34	Hexavalent Chromium as Cr <sup>6+</sup>	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
35	Dissolved Oxygen	mg/l	6.9	7.1
36	Depth of Water	ft	8.6	7.9
<b>Microbiology:</b>				
37	Total Coliform	Per 100ml	Absent	Absent

BDL - Below Detection Limit; DL - Detection Limit

\*\*\*END OF REPORT\*\*\*

For Chennai Testing Laboratory Pvt Ltd

Page 1 of 1

**A. RAJKUMAR**  
Head - Water & Soil Division  
(CHEMICAL)

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CIN : U93000TN2000PTC043869

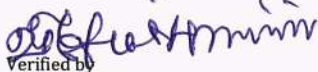
**TEST REPORT**

<b>CUSTOMER NAME :</b>		<b>M/S. IREL(India) Limited.,</b> (A Govt of India Undertaking) Manavalakurichi-629 252. Kanyakumari District, Tamil Nadu.		
<b>LOCATION :</b>		<b>Chinna Vilai</b>		
<b>Sampling Period</b>		<b>April 24 &amp; August 24</b>		
<b>Sample Description By Customer</b>		<b>Open Well Water</b>		
S.No	PARAMETERS	UNITS	MONTH	
			Apr-24	Aug-24
1	Colour	HU	2	2
2	Odour	-	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable
4	Turbidity	NTU	< 1	< 1
5	pH @ 25°C	-	7.6	7.1
6	Total Hardness as CaCO <sub>3</sub>	mg/l	293	313
7	Iron as Fe	mg/l	0.04	0.06
8	Chloride as Cl <sup>-</sup>	mg/l	67	112
9	Free Residual Chlorine	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
10	Fluoride as F	mg/l	0.11	0.13
11	Total Dissolved Solids	mg/l	490	582
12	Calcium as Ca	mg/l	73	94
13	Magnesium as Mg	mg/l	27	19
14	Sulphate as SO <sub>4</sub>	mg/l	30	17
15	Nitrate as NO <sub>3</sub>	mg/l	7.8	7.4
16	Phenolic Compounds as C <sub>6</sub> H <sub>5</sub> OH	mg/l	BDL(DL:0.001)	BDL(DL:0.001)
17	Cyanide as CN	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
18	Anionic detergent as MBAS	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
19	Total Alkalinity as CaCO <sub>3</sub>	mg/l	280	281
20	Boron as B	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
21	Copper as Cu	mg/l	BDL(DL:0.02)	BDL(DL:0.02)
22	Manganese as Mn	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
23	Mercury as Hg	mg/l	BDL(DL:0.001)	BDL(DL:0.001)
24	Cadmium as Cd	mg/l	BDL(DL:0.002)	BDL(DL:0.002)
25	Selenium as Se	mg/l	BDL(DL:0.005)	BDL(DL:0.005)
26	Total Arsenic as As	mg/l	BDL(DL:0.001)	BDL(DL:0.001)
27	Lead as Pb	mg/l	BDL(DL:0.005)	BDL(DL:0.005)
28	Zinc as Zn	mg/l	BDL(DL:0.08)	BDL(DL:0.08)
29	Aluminium as Al	mg/l	BDL(DL:0.02)	BDL(DL:0.02)
30	Mineral oil	mg/l	Absent	Absent
31	Total Suspended Solids	mg/l	2	< 2
32	Biological Oxygen Demand (BOD 3 days at 27°C)	mg/l	< 2	< 2
33	Chemical Oxygen Demand (COD)	mg/l	< 4	< 4
34	Hexavalent Chromium as Cr <sup>6+</sup>	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
35	Dissolved Oxygen	mg/l	7.3	6.9
36	Depth of Water	ft	8.4	6.2
<b>Microbiology:</b>				
37	Total Coliform	Per 100ml	Absent	Absent

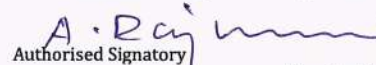
BDL - Below Detection Limit; DL - Detection Limit

\*\*\*END OF REPORT\*\*\*

For Chennai Testing Laboratory Pvt Ltd



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Page 1 of 1

**A. RAJKUMAR**  
Head - Water & Soil Division  
(CHEMICAL)

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CIN : U93000TN2000PTC043869

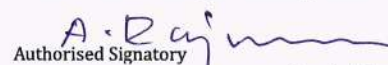
## TEST REPORT

<b>CUSTOMER NAME :</b>		<b>M/S. IREL(India) Limited.,</b> (A Govt of India Undertaking) Manavalakurichi-629 252. Kanyakumari District,Tamil Nadu.		
<b>LOCATION :</b>		<b>Thattan Vilai</b>		
<b>Sampling Period</b>		<b>April 24 &amp; August 24</b>		
<b>Sample Description By Customer</b>		<b>Open Well Water</b>		
S.No	PARAMETERS	UNITS	MONTH	
			Apr-24	Aug-24
1	Colour	HU	2	2
2	Odour	-	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable
4	Turbidity	NTU	< 1	< 1
5	pH @ 25°C	-	8.2	6.7
6	Total Hardness as CaCO <sub>3</sub>	mg/l	163	141
7	Iron as Fe	mg/l	0.06	0.03
8	Chloride as Cl <sup>-</sup>	mg/l	94	105
9	Free Residual Chlorine	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
10	Fluoride as F	mg/l	0.13	0.12
11	Total Dissolved Solids	mg/l	430	454
12	Calcium as Ca	mg/l	49	40
13	Magnesium as Mg	mg/l	10	10
14	Sulphate as SO <sub>4</sub>	mg/l	64	53
15	Nitrate as NO <sub>3</sub>	mg/l	6.7	6.4
16	Phenolic Compounds as C <sub>6</sub> H <sub>5</sub> OH	mg/l	BDL(DL:0.001)	BDL(DL:0.001)
17	Cyanide as CN	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
18	Anionic detergent as MBAS	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
19	Total Alkalinity as CaCO <sub>3</sub>	mg/l	116	145
20	Boron as B	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
21	Copper as Cu	mg/l	BDL(DL:0.02)	BDL(DL:0.02)
22	Manganese as Mn	mg/l	BDL (DL:0.01)	BDL (DL:0.01)
23	Mercury as Hg	mg/l	BDL(DL:0.001)	BDL(DL:0.001)
24	Cadmium as Cd	mg/l	BDL(DL:0.002)	BDL(DL:0.002)
25	Selenium as Se	mg/l	BDL(DL:0.005)	BDL(DL:0.005)
26	Total Arsenic as As	mg/l	BDL(DL:0.001)	BDL(DL:0.001)
27	Lead as Pb	mg/l	BDL(DL:0.005)	BDL(DL:0.005)
28	Zinc as Zn	mg/l	BDL(DL:0.08)	BDL(DL:0.08)
29	Aluminium as Al	mg/l	BDL(DL:0.02)	BDL(DL:0.02)
30	Mineral oil	mg/l	Absent	Absent
31	Total Suspended Solids	mg/l	< 2	< 2
32	Biological Oxygen Demand (BOD 3 days at 27°C)	mg/l	< 2	< 2
33	Chemical Oxygen Demand (COD)	mg/l	< 4	< 4
34	Hexavalent Chromium as Cr <sup>6+</sup>	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
35	Dissolved Oxygen	mg/l	7.2	7.1
36	Depth of Water	ft	7.8	5.6
<b>Microbiology:</b>				
37	Total Coliform	Per 100ml	Absent	Absent

BDL - Below Detection Limit; DL - Detection Limit

\*\*\*END OF REPORT\*\*\*

For Chennai Testing Laboratory Pvt Ltd

Page 1 of 1

**A. RAJKUMAR**  
Head - Water & Soil Division  
(CHEMICAL)

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A - Super 19, T.V.K. Industrial Estate, Guindy, Chennai - 600 032, Tamil Nadu - India

Phone : +91-44-2250 1757 | E-mail : chennaiesting@chennaiestinglab.com www.ctllabs.in



CIN : U93000TN2000PTC043869

## TEST REPORT

<b>CUSTOMER NAME :</b>		<b>M/S. IREL(India) Limited.,</b> (A Govt of India Undertaking) Manavalakurichi-629 252. Kanyakumari District,Tamil Nadu.		
<b>LOCATION :</b>		<b>Panan Vilai</b>		
<b>Sampling Period</b>		<b>April 24 &amp; August 24</b>		
<b>Sample Description By Customer</b>		<b>Open Well Water</b>		
S.No	PARAMETERS	UNITS	MONTH	
			Apr-24	Aug-24
1	Colour	HU	2	2
2	Odour	-	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable
4	Turbidity	NTU	< 1	2
5	pH @ 25°C	-	8.1	6.7
6	Total Hardness as CaCO <sub>3</sub>	mg/l	446	277
7	Iron as Fe	mg/l	0.07	0.27
8	Chloride as Cl <sup>-</sup>	mg/l	480	333
9	Free Residual Chlorine	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
10	Fluoride as F	mg/l	0.10	0.23
11	Total Dissolved Solids	mg/l	1130	850
12	Calcium as Ca	mg/l	154	83
13	Magnesium as Mg	mg/l	15	17
14	Sulphate as SO <sub>4</sub>	mg/l	27	32
15	Nitrate as NO <sub>3</sub>	mg/l	16	9.8
16	Phenolic Compounds as C <sub>6</sub> H <sub>5</sub> OH	mg/l	BDL(DL:0.001)	BDL(DL:0.001)
17	Cyanide as CN	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
18	Anionic detergent as MBAS	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
19	Total Alkalinity as CaCO <sub>3</sub>	mg/l	108	124
20	Boron as B	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
21	Copper as Cu	mg/l	BDL(DL:0.02)	BDL(DL:0.02)
22	Manganese as Mn	mg/l	0.04	0.03
23	Mercury as Hg	mg/l	BDL(DL:0.001)	BDL(DL:0.001)
24	Cadmium as Cd	mg/l	BDL(DL:0.002)	BDL(DL:0.002)
25	Selenium as Se	mg/l	BDL(DL:0.005)	BDL(DL:0.005)
26	Total Arsenic as As	mg/l	BDL(DL:0.001)	BDL(DL:0.001)
27	Lead as Pb	mg/l	BDL(DL:0.005)	BDL(DL:0.005)
28	Zinc as Zn	mg/l	BDL(DL:0.08)	BDL(DL:0.08)
29	Aluminium as Al	mg/l	BDL(DL:0.02)	BDL(DL:0.02)
30	Mineral oil	mg/l	Absent	Absent
31	Total Suspended Solids	mg/l	< 2	6
32	Biological Oxygen Demand (BOD 3 days at 27°C)	mg/l	< 2	< 2
33	Chemical Oxygen Demand (COD)	mg/l	< 4	< 4
34	Hexavalent Chromium as Cr <sup>6+</sup>	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
35	Dissolved Oxygen	mg/l	6.9	7.2
36	Depth of Water	ft	8.9	7.1
<b>Microbiology:</b>				
37	Total Coliform	Per 100ml	Absent	Absent

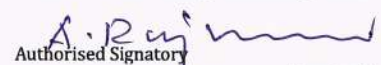
BDL - Below Detection Limit; DL - Detection Limit

\*\*\*END OF REPORT\*\*\*

For Chennai Testing Laboratory Pvt Ltd



Verified by



Authorised Signatory

Page 1 of 1

**A. RAJKUMAR**  
Head - Water & Soil Division  
(CHEMICAL)

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CIN : U93000TN2000PTC043869

## TEST REPORT

<b>CUSTOMER NAME :</b>		<b>M/S. IREL(India) Limited.,</b> (A Govt of India Undertaking) Manavalakurichi-629 252. Kanyakumari District, Tamil Nadu.		
<b>LOCATION :</b>		<b>Kootumangalam</b>		
<b>Sampling Period</b>		<b>April 24 &amp; August 24</b>		
<b>Sample Description By Customer</b>		<b>Open Well Water</b>		
S.No	PARAMETERS	UNITS	MONTH	
			Apr-24	Aug-24
1	Colour	HU	2	2
2	Odour	-	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable
4	Turbidity	NTU	< 1	4
5	pH @ 25°C	-	7.9	6.6
6	Total Hardness as CaCO <sub>3</sub>	mg/l	48	146
7	Iron as Fe	mg/l	0.04	0.26
8	Chloride as Cl <sup>-</sup>	mg/l	64	95
9	Free Residual Chlorine	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
10	Fluoride as F	mg/l	BDL(DL:0.1)	0.22
11	Total Dissolved Solids	mg/l	190	382
12	Calcium as Ca	mg/l	11	47
13	Magnesium as Mg	mg/l	5	7
14	Sulphate as SO <sub>4</sub>	mg/l	13	25
15	Nitrate as NO <sub>3</sub>	mg/l	3.6	5.9
16	Phenolic Compounds as C <sub>6</sub> H <sub>5</sub> OH	mg/l	BDL(DL:0.001)	BDL(DL:0.001)
17	Cyanide as CN	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
18	Anionic detergent as MBAS	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
19	Total Alkalinity as CaCO <sub>3</sub>	mg/l	29	111
20	Boron as B	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
21	Copper as Cu	mg/l	BDL(DL:0.02)	BDL(DL:0.02)
22	Manganese as Mn	mg/l	BDL (DL:0.01)	0.02
23	Mercury as Hg	mg/l	BDL(DL:0.001)	BDL(DL:0.001)
24	Cadmium as Cd	mg/l	BDL(DL:0.002)	BDL(DL:0.002)
25	Selenium as Se	mg/l	BDL(DL:0.005)	BDL(DL:0.005)
26	Total Arsenic as As	mg/l	BDL(DL:0.001)	BDL(DL:0.001)
27	Lead as Pb	mg/l	BDL(DL:0.005)	BDL(DL:0.005)
28	Zinc as Zn	mg/l	BDL(DL:0.08)	BDL(DL:0.08)
29	Aluminium as Al	mg/l	BDL(DL:0.02)	BDL(DL:0.02)
30	Mineral oil	mg/l	Absent	Absent
31	Total Suspended Solids	mg/l	< 2	12
32	Biological Oxygen Demand (BOD 3 days at 27°C)	mg/l	< 2	< 2
33	Chemical Oxygen Demand (COD)	mg/l	< 4	< 4
34	Hexavalent Chromium as Cr <sup>6+</sup>	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
35	Dissolved Oxygen	mg/l	7.0	6.9
36	Depth of Water	ft	7.6	4.1
<b>Microbiology:</b>				
37	Total Coliform	Per 100ml	Absent	Absent

BDL - Below Detection Limit; DL - Detection Limit

\*\*\*END OF REPORT\*\*\*

*[Signature]*  
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For Chennai Testing Laboratory Pvt Ltd

*[Signature]*  
Authorised Signatory  
Page 1 of 1

**A. RAJKUMAR**  
Head - Water & Soil Division  
(CHEMICAL)

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CIN : U93000TN2000PTC043869

**TEST REPORT**


Customer Name & Address		M/S. IREL(India) Limited., (A Govt of India Undertaking) Manavalakurichi-629 252,Kanyakumari District,Tamil Nadu.				
		SAMPLE DETAILS				
Sample Description		Noise Monitoring				
Sampled By		Chennai Testing Laboratory Pvt. Ltd.,				
Sampling Period		April 2024 & July 2024				
Sampling Method		CTL/SOP//INS/035				
SL.NO	LOCATION	NOISE LEVEL dB (A)Leq				Remarks
		Apr-24		Jul-24		
		Day Noise	Night Noise	Day Noise	Night Noise	
I-MINERAL SEPARATION PLANT (MSP)						
1	Zircon Section	81.4	80.0	84.3	81.2	Ear Muff/ EarPlug is to be used
2	22 TPH FBD Control Cabin	69.7	68.3	68.8	67.3	-
3	Rutile Section -Bagging Area	83.1	81.6	83.7	82.5	Ear Muff/ EarPlug is to be used
4	Zircon Section - Final Air Tables	83.8	82.5	86.0	84.9	Ear Muff/ EarPlug is to be used
5	Zircon Section - Primary Air Tables	86.3	85.7	86.1	85.1	Ear Muff/ EarPlug is to be used
6	Shift Incharge Cabin	65.7	64.9	64.0	62.6	-
7	2 TPH FBD Control Cabin	78.1	75.2	74.9	73.8	Ear Muff/ EarPlug is to be used
8	Air Tables in the Zircon Wet	81.4	78.6	84.5	83.7	Ear Muff/ EarPlug is to be used
9	Zircon Bagging Area	82.2	81.3	78.5	77.3	Ear Muff/ EarPlug is to be used
10	Garnet Final Collecting Area	84.1	82.4	80.0	78.8	Ear Muff/ EarPlug is to be used
11	Monozite Section	86.7	84.3	81.6	80.9	Ear Muff/ EarPlug is to be used
12	Generator Operator Cabin	56.1	54.2	55.9	52.5	-
II- HUP						
13	Operator Control Cabin - 1st Floor	66.8	64.9	65.5	64.6	-
14	Bunker Area	81.2	80.6	75.5	72.8	Ear Muff/ EarPlug is to be used
15	Shift Incharge Cabin 2nd Floor	64.8	61.5	64.5	63.1	-
III- PUMP HOUSE						
16	Pump House Operator Cabin Inside	68.6	66.2	66.3	65.7	-
17	Pump House Operator Cabin Outside	78.3	72.9	76.8	74.6	-
IV-OUT SIDE PLANT						
18	Near Electrical Work shop	64.8	49.7	58.5	50.7	-
19	Housing Complex (Nr Water Tank)	46.7	42.5	47.5	43.5	-
20	Guest House	45.3	41.8	47.6	42.1	-
V-HEM MACHINARY						
21	Front End Loader Inside Cabin (TN69 BD 3646)	87.4	86.5	77.8	77.3	Ear Muff/ EarPlug is to be used
22	Dipper (TN 18 AQ 2777)	78.3	76.2	78.3	77.1	-
23	Excavator (JS 205LC)	88.9	82.7	81.6	81.2	Ear Muff/ EarPlug is to be used
VI- MINING SITES						
24	Periavilai Beach	66.1	64.9	64.6	66.3	-
25	Chinnavilai Beach	67.5	65.3	65.1	67.1	-
26	Sea Side	66.8	67.3	66.2	68.2	-
27	Front Entrance (North)	62.5	55.8	62.2	56.9	-
28	East Side of IREL	49.7	48.6	49.3	44.8	-
29	South Side of IREL	66.6	67.4	66.8	68.3	-
30	West Side of IREL	64.9	63.5	65.0	67.9	-

\*\*\*END OF REPORT\*\*\*



Verified by

For Chennai Testing Laboratory



Authorized Signatory

Page 1 of 1

**G. MANIKANDAN**  
Head - Environment Division  
(CHEMICAL)

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## TAMILNADU WATER SUPPLY AND DRAINAGE BOARD

## DISTRICT WATER TESTING LABORATORY

Asaripallam Medical College Road, Post Office Upstair,

Asaripallam – 629201

Phone: 04652 - 238315

E-mail: jwalabngl@gmail.com



## TEST REPORT

Doc.No: DWTL/FORM/7.8/01

Test Report No: TR/2024/48369, 48371, 48373	Report Issue Date: 22.04.2024
Invoice Details: 10372/Dt.12.04.2024/Rs.4,956/-	

Customer Name & Address Contact No / Email.ID	: IREL (India) Limited, Manavalakurichi Post – 629 252 Kanyakumari District
Sample Name	: Water
Sample Description	: 1) Bore water, (2) Bore water, (3) Well water
Sample Submitted by	: IREL (India) Limited
Location & Date	: 1) Drinking water tap @ Mechanical workshop 2) Drinking water tap @ Dispensary 3) Drinking water tap @ VTC well water tap
Quantity of sample Received	: 2 Litres
Sample Container	: PT Cane
Sample Condition on Receipt	: Good
Sample Received On	: 12.04.2024
Test Commenced on	: 12.04.2024
Test Completed on	: 22.04.2024
Environmental Condition	: 24.5 <sup>0</sup> C

S.No	Parameters	Test Method	Unit	Result			Specification as per IS 10500 : 2012	
				48369	48371	48373	Acceptable Limit	Permissible Limit in the absence of alternate source
1	pH	IS 3025 Part 11-1983	-	7.24	6.91	6.61	6.5-8.5	6.5-8.5
2	Total Hardness as CaCO <sub>3</sub>	IS 3025 Part 21-20009	mg/L	248	176	276	200	600
3	Total Alkalinity	IS 3025-Part 23-1986	mg/L	208	172	208	200	600
4	Chloride as Cl	IS 3025-Part 32-1988	mg/L	98	146	116	250	1000
5	Sulphate as SO <sub>4</sub>	IS 3025-Part 24-1986	mg/L	7	13	7	200	400
6	Nitrate as NO <sub>3</sub>	APHA 23rd Edition 2017-4500-NO3 B	mg/L	<2	<2	<2	45	45
7	Fluoride as F	APHA 23rd Edition 2017-4500-F-D	mg/L	0.2	0.2	0.2	1.0	1.5

*B. Hari Govind*  
22/4/24  
Authorised Signatory  
B.Hari Govind - Assistant Executive Engineer

## Note:

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- Unless informed by customer, the test items will not be retained for more than 15 days from the date of issue of the test report.
- The Result apply to the sample as Received.

Issue No./Date	01/01.10.2021	Amend. No/ Date	00/--	Page No	1 of 2
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# TAMILNADU WATER SUPPLY AND DRAINAGE BOARD

## DISTRICT WATER TESTING LABORATORY

Asaripallam Medical College Road, Post Office Upstair,

Asaripallam – 629201

Phone: 04652 - 238315

E-mail: jwalabngl@gmail.com

### TEST REPORT

Doc.No: DWTL/FORM/7.8/01

Test Report No: 48369-48374

Report Issue Date : 22.04.2024

Invoice Details: 10372/ Dt.12.04.2024/Rs.4,956/-

S.No	Parameters	Test Method	Unit	Result			Specification as per IS 10500 : 2012	
8	Appearance	Physical observation	--	Clear	Clear	Clear	-	-
9	Colour	APHA 23rd Edition 2017 4500 H+B	Hazen	Colourless	Colourless	Colourless	Agreeable	Agreeable
10	Odour	IS 3025 Part 5 : 1983	--	None	None	None	-	-
11	Turbidity	APHA 23rd Edition 2017 - 2130 B	NTU	0	0	0	1	5
12	Total Dissolved Solids	APHA 23rd Edition 2017 - 2540 C	mg/L	474	570	523	500	2000
13	Conductivity	APHA 23rd Edition 2017 - 2510 B	μS/cm	719	864	793	-	-
14	P - Alkalinity	IS 3025-Part 23-1983	mg/L	0	0	0	-	-
15	Calcium	APHA 23rd Edition 2017 - 3500 Ca B	mg/L	48	34	76	75	200
16	Magnesium	APHA 23rd Edition 2017- 3500 Mg B	mg/L	0	0	0	30	100
17	Sodium	APHA 23rd Edition 2017 - 3500 Na B	mg/L	-	-	-	-	-
18	Potassium	APHA 23rd Edition 2017 - 3500 K B	mg/L	-	-	-	-	-
19	Iron	APHA 23rd Edition 2017- 3500 Fe B	mg/L	0.12	0.24	0.12	0.3	1
20	Manganese	APHA 23rd Edition 2017 - 3500 Mn B	mg/L	0.00	0.00	0.00	0.1	0.3
21	Ammonia	APHA 17th Edition-1989- 4500 NH3C	mg/L	0.08	0.08	0.12	0.5	0.5
22	Nitrite as NO <sub>2</sub>	APHA 23rd Edition 2017- 4500-NO2 B	mg/L	0.04	0.01	0.04	-	-
23	Total Phosphate as PO <sub>4</sub>	APHA 23rd Edition 2017 - 4500 P- D	mg/L	0.05	0.30	0.05	-	-
24	Tidys	APHA 23rd Edition 2017 - 4500 O - B	mg/L	0.20	0.36	0.20	-	-
25	Residual Chlorine as RC	IS / APHA	mg/L	0	0	0	0.2	0.2
				48370	48372	48374		
26	Faecal Coliform	IS / APHA	CFU / 100 ml	0	0	0	0	0

Remarks : The above water sample confirmed to IS 10500-2012. Drinking water specification with respect to above tested parameters. The water is chemically potable and Bacteriologically safe

.....End of the report.....

*B. Hari Govind*  
22/4/24  
Authorised Signatory  
B.Hari Govind - Assistant Executive Engineer

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- The Result apply to the sample as Received.

Issue No./Date

01/01.10.2021

Amend. No/ Date

00/--

Page No

2 of 2



# TAMILNADU WATER SUPPLY AND DRAINAGE BOARD

## DISTRICT WATER TESTING LABORATORY

Asaripallam Medical College Road, Post Office Upstair,  
Asaripallam – 629201

Phone: 04652 - 238315

E-mail: jwalabngl@gmail.com

### TEST REPORT

Doc.No: DWTL/FORM/7.8/01

Test Report No: TR/2024/ 49060, 49062, 49064	Report Issue Date : 02.08.2024
Invoice Details: 10538/Dt.25.07.2024/Rs.4,956/-	

Customer Name & Address Contact No / Email.ID	: IREL (India) Limited, Manavalakurichi Post, Kanyakumari District – 629 252.
Sample Name	: Water
Sample Description	: Drinking water – Bore water
Sample Submitted by	: The Assistant Executive Engineer
Location & Date	: (1) Drinking water tap @ MSP (2) Drinking water tap @ Canteen (3) Drinking water tap @ Admin. Office
Quantity of sample Received	: 2 Litres
Sample Container	: PT Cane
Sample Condition on Receipt	: Good
Sample Received On	: 25.07.2024
Test Commenced on	: 25.07.2024
Test Completed on	: 02.08.2024
Environmental Condition	: 24.5 <sup>0</sup> C

Sl. No.	Parameters	Test Method	Unit	Result			Specification as per IS 10500 : 2012	
				49060	49062	49064	Acceptable Limit	Permissible Limit in the absence of alternate source
1	pH	IS 3025 Part 11-2022	-	6.56	7.43	6.94	6.5-8.5	6.5-8.5
2	Total Hardness as CaCO <sub>3</sub>	IS 3025 Part 21-2009(RA 2019)	mg/L	8	209	167	200	600
3	Total Alkalinity	IS 3025-Part 23-2023	mg/L	16	264	136	200	600
4	Chloride as Cl	IS 3025-Part 32-1988(RA 2019)	mg/L	9	61	34	250	1000
5	Sulphate as SO <sub>4</sub>	IS 3025-Part 24-2022(Turbidity Method)	mg/L	<5	12	9	200	400
6	Nitrate as NO <sub>3</sub>	APHA 24th Edition 2023-4500-NO <sub>3</sub> B	mg/L	<2	3	<2	45	45
7	Fluoride as F	APHA 24th Edition 2023-4500-F-D	mg/L	0.2	0.3	0.2	1.0	1.5

**Remarks:** The above water sample confirmed to IS 10500-2012. Drinking water specification with respect to above tested parameters.

*B. Hari Govind*

Reviewed & Authorised Signatory  
B.Hari Govind - Assistant Executive Engineer

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3. The test items will not be retained for more than 15 days from the date of issue of the test report.
4. The Result apply to the sample as Received.

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# TAMILNADU WATER SUPPLY AND DRAINAGE BOARD

## DISTRICT WATER TESTING LABORATORY

Asaripallam Medical College Road, Post Office Upstair,

Asaripallam – 629201

Phone: 04652 - 238315

E-mail: jwalabngl@gmail.com

### TEST REPORT

Doc.No: DWTL/FORM/7.8/01

Test Report No: 49060-49065

Report Issue Date : 02.08.2024

Invoice Details: 10538/ Dt.25.07.2024/Rs.4,956/-

SL. No.	Parameters	Test Method	Unit	Result			Specification as per IS 10500 : 2012	
8	Appearance	Physical observation	--	Clear	Clear	Clear	-	-
9	Colour	APHA 23rd Edition 2017 4500 H+B	Hazen	Colourless	Colourless	Colourless	Agreeable	Agreeable
10	Odour	IS 3025 Part 5 : 1983	--	None	None	None	-	-
11	Turbidity	APHA 23rd Edition 2017 - 2130 B	NTU	0	0	0	1	5
12	Total Dissolved Solids	APHA 23rd Edition 2017 - 2540 C	mg/L	27	460	227	500	2000
13	Conductivity	APHA 23rd Edition 2017 - 2510 B	µS/cm	40	699	344	-	-
14	P - Alkalinity	IS 3025-Part 23-1983	mg/L	0	0	0	-	-
15	Calcium	APHA 23rd Edition 2017 - 3500 Ca B	mg/L	2	38	28	75	200
16	Magnesium	APHA 23rd Edition 2017 - 3500 Mg B	mg/L	0	11	9	30	100
17	Sodium	APHA 23rd Edition 2017 - 3500 Na B	mg/L	-	-	-	-	-
18	Potassium	APHA 23rd Edition 2017 - 3500 K B	mg/L	-	-	-	-	-
19	Iron	APHA 23rd Edition 2017 - 3500 Fe B	mg/L	0.12	0.12	0.12	0.3	1
20	Manganese	APHA 23rd Edition 2017 - 3500 Mn B	mg/L	0.00	0.00	0.00	0.1	0.3
21	Ammonia	APHA 17th Edition-1989-4500 NH3C	mg/L	0.04	0.04	0.08	0.5	0.5
22	Nitrite as NO <sub>2</sub>	APHA 23rd Edition 2017 - 4500-NO2 B	mg/L	0.01	0.01	0.01	-	-
23	Total Phosphate as PO <sub>4</sub>	APHA 23rd Edition 2017 - 4500 P- D	mg/L	0.05	0.10	0.05	-	-
24	Tidys	APHA 23rd Edition 2017 - 4500 O - B	mg/L	0.26	0.28	0.32	-	-
25	Residual Chlorine as RC	IS / APHA	mg/L	0	0	0	0.2	0.2
				49061	49063	49065		
26	Feecal Coliform	IS / APHA	CFU / 100 ml	0	0	0	0	0

**Remarks :** The above water sample confirmed to IS 10500-2012. Drinking water specification with respect to above tested parameters. The water is chemically potable and bacteriologically safe.

.....End of the report.....

B. Hari Govind  
21/8/24

Reviewed & Authorised Signatory  
B.Hari Govind - Assistant Executive Engineer

#### Note:

1. The test results relate only to the items tested.
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4. The Result apply to the sample as Received.

Issue No./Date

01/01.10.2021

Amend. No/ Date

02.01.2024

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# 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

ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Company

## Details of Plantation/ Green Belt Development by the Unit

Year	Area Mined (in Ha)	Plantation Area (in Ha)			Numbers of saplings planted		
		Mined out area	Others (Plant & Colony)	Total	Mined out area	Others (Plant & Colony)	Total
2012-13	1.8	1.5	-	1.5	6500	-	6500
2013-14	1.8	3.0	-	3.0	6500	-	6500
2014-15	2.57	3.0	-	3.0	7140	-	7140
2015-16	2.8	3.0	-	3.0	6410	-	6410
2016-17	2.45	3.0	-	3.0	6765	-	6765
2017-18	0	3.0	-	3.0	7000	-	7000
2018-19	3.0	3.0	-	3.0	6928	-	6928
2019-20	2.0	3.0	-	3.0	7500	-	7500
2020-21	3.1	2.5	0.5	3.0	7300	-	7300
2021-22	3.5	2.2	1.0	3.2	7000	500	7500
2022-23	2.0	2.5	0.5	3.0	7493	540	7853
2023-24	3.5	3.5	0.5	3.5	7000	872	7872
2024-25 1 <sup>st</sup> Half	2.0	2.0	-	2.0	5870	-	5870

DGM-Technical (Mining & Safety)

मणवालकुरिचि, कन्याकुमारी जिला, तमिलनाडु - 629 252.

Manavalakurichi, Kanyakumari Dist, Tamil Nadu - 629 252.

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.

फोन / Tel. : 022 - 2421 1630 / 2438 2042 फैक्स / Fax : 022 - 2422 0236





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# आईआरईएल (इंडिया) लिमिटेड IREL (India) Limited

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CIN : U15100MH1950GOI008187 Website : www.irel.co.in

ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Company

## Fund allocation towards Environmental Protection, Prevention & Control of Pollution and CSR activities.

Period: April 2024 to September 2024

Sl.No.	Activities	Amount (Rs.)
1	Sewage Treatment operation & maintenance	4,47,875
2	AAQ & Stack Monitoring, Noise, Illumination & Water	1,51,158
3	Water & Air Consent fees, AAQ, Stack Noise and sewage Monitoring fees to TNPCB	7,34,490
4	Radioactivity & Dust Monitoring	1,49,000
5	Afforestation/Green Belt Development	3,10,430
6	Watering to suppress the dust & Spillage Cleaning from the Road	7,89,860
7	Maintenance of garden & lawn	4,00,934
8	Cleaning of bushes, weeds etc	4,56,000
9	Clearing drainage, Road & Valley gutter	1,71,833
10	Cleaning, Housekeeping & Up keeping works	10,86,212
11	Cleaning of Plant floor & Spillage	23,74,409
12	Awareness programs	91,863
13	Expenditure on CSR activities	91,19,000
Total		1,62,83,064

DGM-Technical (Mining & Safety)

मणवालकुरिचि, कन्याकुमारी जिला, तमिलनाडु - 629 252.

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