



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



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

Email: head.mk@irel.co.in

14.05.2024

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

E-mail: ecompliance-tn@gov.in

विषय : मणवालकुरिची, लक्ष्मीपुरम और कोलाचेल गांवों, कलकुलम तालुक, कन्याकुमारी जिला, तमिलनाडु में स्थित मैसर्स आईआरईएल (इंडिया) लिमिटेड, (पूर्व में इंडियन रेयर अर्थ्स लिमिटेड) के 141.2269 हेक्टेयर के एमएल क्षेत्र के लिए अक्टूबर - 2023 से मार्च - 2024 की अवधि के लिए अर्धवार्षिक अनुपालन रिपोर्ट।

Sub: Half yearly compliance report for the period from October-2023 to March-2024 for **ML area of 141.2269 ha.** of M/s IREL (India) Limited, Formerly Indian Rare Earths Limited, located at Manavalakurichi, Lakshmipuram & Colachel villages, Kalkulam Taluk, Kanyakumari District, Tamilnadu

संदर्भ: एम ओई एफ और सीसी पत्रसं.जे-11015/387/2010-IA.II (M)-आईए.॥ दिनांक 06.04.2018

Ref: MoEF&CC letter no. J-11015/387/2010-IA.II (M) dated 06.04.2018

महोदय Sir,

हम अक्टूबर - 2023 से मार्च - 2024 तक की अवधि के लिए अर्धवार्षिक अनुपालन रिपोर्ट अनुबंध-I के रूप में प्रस्तुत करते हैं। हमारे 141.2269 हेक्टेयर खनन पट्टा क्षेत्र के लिए प्रासंगिक निगरानी रिपोर्ट अनुबंध-II के रूप में संलग्न हैं। यह आपके सादर सूचनार्थ है।

We are submitting the Half Yearly Compliance report for the period from October-2023 to March-2024 as Annexure - I. Relevant monitoring reports are enclosed as Annexure-II for our mining lease area of **141.2269 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)

मणवालकुरिची, 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.

प्रतिलिपि/Copy to:

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

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

HALF YEARLY COMPLIANCE REPORT**(OCTOBER- 2023 To MARCH 2-024)**

MINING LEASE: G.O.Ms. No.1114 DATED: 12.08.1981/ G.O.Ms No.73 dated 11.02.2021;

AREA:141.2269 HECTS

ENVIRONMENTAL CLEARANCE ORDER: J-11015/387/2010-IA.II DATED 06.04.2018

Sl.	Conditions	Compliance
A	Specific Conditions	
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 being 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 and Garnet 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	The recommendations of TNSCZMA vide letter dated: 8.1.2018 are being 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) The inland mining operations undertaken by IREL, Manavalakurichi within the mining lease hold areas are away from the beach where simultaneous backfilling over the mined out area is carried out in order to restore the topography. 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 action. All the mining operations are undertaken as per approved mining plan.

Sl.	Conditions	Compliance
	project activities and periodical water quality monitoring shall be conducted and (vi) The unit shall not establish new mineral separation plant/processing unit within CRZ areas and also there should not be any expansion of existing mineral separation plant/ processing unit.	(iii) The mined out area is refilled with tailings and original landscape is maintained. (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. Periodical water quality monitoring is being 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.	Mining operations over the private patta lands not owned by IREL is carried out only after obtaining the consents from the concerned land owners and executing the agreement as per the provisions of Atomic Mineral Concession Rules, 2016 and MMDR Act, 1957
8	During mining operations, the village built up areas, roads, human settlement areas shall not be disturbed.	During mining operations, the village built up areas, roads, human settlement area are not disturbed.
9	The tailing will be backfilled only in the mined out area.	The tailing is used only for backfilling of mined out area
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 Atomic Energy (Radiation Protection) Rules, 2004 for operation of Beach Sand Minerals facility. Present AERB clearance is valid upto 31.08.2024. Renewal application has been submitted.
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 checkup 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,	No sand dunes are available in the mining lease area. IREL, Manavalakurichi does not carry out altering of natural features including landscape changes for beautification/ recreational purposes.

Sl.	Conditions	Compliance
	hills, natural features including landscape changes shall not 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 method of mining adopted by IREL, Manavalakurichi is Environment friendly and there is no chance of intrusion of sea water into hinterland during mining operations. However, necessary precautions shall be taken to avoid the problems of submersion/ flooding.
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 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.	Mining operations & back filling with tailings are carried out systematically in a sustainable manner as per the approved mining plan. Afforestation is carried out over mined out areas with native species. The tailing generated after separation of atomic minerals (beach sand minerals) are used for backfilling the mined out areas and under no circumstance, 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. A number of 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 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 Department of Atomic Energy. (Annexure-II, sl no.1)

Sl.	Conditions	Compliance
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 being carried out. The record of the monitoring data are being submitted to MoEF&CC, its Regional Office, Chennai. Central Groundwater Authority, Regional Director, Central Groundwater Board, State Pollution Control Board and Central Pollution Control Board at regular intervals. (Annexure-II, Sl.No.2)
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	Standard Conditions	
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 the 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.	As such there is no requirement of water for mining operations. However, process water is required for Mineral Beneficiation activities at IREL, Manavalakurichi. In this connection, IREL has obtained the permission from Govt. of Tamilnadu. IREL remits the water charges regularly in advance to Govt. of Tamilnadu for drawl of water from the Valliyar River.
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, 1960 and MMDR Act, 1957.	Mining operations over the private patta lands not owned by IREL is carried out only after obtaining the consents from the concerned land owners and executing the agreement as per the provisions of AMCR, 2016 and MMDR Act, 1957.
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 shall be submitted to Ministry of Environment, Forest and Climate Change and 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	<p>The critical parameters as per the Notification 2009 such as PM₁₀, PM_{2.5}, NO_x, and SO_x, 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.</p>	<p>The ambient air qualities, Stack emission & Sewage water are monitored periodically by TNPCB approved Agency. However, there is no discharge of water due to mining operations. The process water in the Mineral Beneficiation activities is recycled and there is no direct discharge of water into the environment at IREL, Manavalakurichi. The monitored data is displayed on a display board at the plant site near the main gate of IREL, Manavalakurichi company in public domain. The monitored datas will be uploaded on IREL 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 will be complied. (Annexure-II, Sl. nos. 3, 4&6)</p>
8	<p>Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of PM₁₀ and PM_{2.5} 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 is to be carried out based on the notification 2009, as amended from time to time by the Central Pollution Control Board.</p>	<p>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 in the limit prescribed by the Central Pollution Control Board.</p>
9	<p>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.</p>	<p>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, its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board(Annexure-II, Sl. nos. 7).</p>

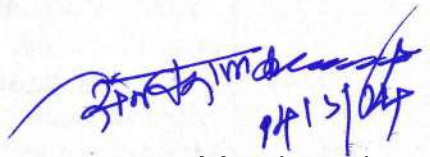
10	Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintain. The natural water bodies and or streams which are flowing in an around the village, should not be disturbed. The Water Table should be nurtured so 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 wall located in village should be incorporated to ascertain the impact of mining over ground water table.	No springs and nallahs are flowing in and around the ML area. Natural water bodies or streams which are flowing in and around the village 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 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 will be 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.
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. (Annexure-II, Sl. no.5,8)
13	Main haulage road in the mine should be provided with permanent water sprinklers and other roads 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-conveyor 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.
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 will be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office on six monthly basis. (Annexure-II, Sl. no.7)

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.	The mining and mineral separation plant operations are carried out very near to shore. Rain water harvesting system is implemented at IREL, Manavalakurichi where all the rooftop rain water collected from plant area is stored in a 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 adopted to that micro climate.	Mining and simultaneous backfilling of the mined out pits are followed systematically at IREL, Manavalakurichi. Scientific reclamation & systematic Afforestation are practised in order to generate greenery. The tailings dumps are made to restore the natural 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 at IREL, Manavalakurichi. Mineralisation occurs right from surface of the deposit. Mined out areas are backfilled with tailings generated from Mineral beneficiation operations followed by systematic plantation to restore the natural topography. The compliance status will be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office on six monthly basis.
18	Plantation shall be raised in a 7.5 m 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 Guidlines. 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.	The density of plants over the backfilled areas is maintained around 2500 plants per hectare. Green belt has been developed over the mined out and backfilled areas within the ML area. The mining lease area is just adjacent to the Arabian Sea. The seaside area of the mining lease boundary is a replenishable zone where plantation cannot developed due to littoral action. However, other side of the ML boundary, greenbelt is being developed in phased manner. (Annexure-II, Sl. no. 10)

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.	IREL, Manavalakurichi will follow the guidelines issued by MoEF&CC vide OM No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014. As such it is intimated that the village built up areas, habitation, roads existing within the ML area will not be disturbed due to mining operations.
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 at IREL, Manavalakurichi are continuing since 1970. Corporate Social Responsibility activities are carried out as per the provisions under Companies Act, 2013 and CSR rules, 2014. CSR fund is always allocated more than 2 % of the net profit of the company. IREL, Manavalakurichi has spent Rs.317.91 lakhs towards CSR during the period from October-2023 to March-2024. The CSR is a regular activity and the action plan towards meeting the local needs will be implemented in time bound manner.
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.	141.2269 hectares Mining Lease area of IREL is existing at Manavalakurichi since 1984 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.	Noise levels are maintained below 85 dBA. All persons engaged in HEMM operations are provided with ear plugs/muffs. (Annexure-II, Sl. no. 8)
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 th May, 1993 and 31 st 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 Beach Mineral Sand 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 training as per Mines Vocational Training Rules, 1966. Personnel working in dusty area 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 is constituted at IREL, Manavalakurichi and effectively functioning. Unit head is the Chairmen of the Cell. Once in every three months, the environmental parameters of the mines and mineral beneficiation areas are reviewed 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. (Annexure-II, Sl. no. 11)
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 already exists since 1984. 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 hard copy is submitted to Ministry of Environment, Forest and Climate Change, its 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 will extend full cooperation to the Officers of MoEF&CC in the event of 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 Panchayat.
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	<p>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 www.environmentclearance.nic.in and a copy of the same should be forwarded to the Regional Office.</p>	<p>Information on Environment Clearance for 141.2269 hec ML area of IREL was published in two local newspapers Dinamani and The New Indian Express on 11.04.2018 and the same was forwarded to the Regional office.</p>
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 CGM & Head
 Manavalakurichi Ilmenite Mine





CIN : U93000TN2000PTC043869

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TEST REPORT

CUSTOMER NAME :		M/S. IREL(India) Limited., (A Govt of India Undertaking) Manavalakurichi-629 252, Kanyakumari District, Tamil Nadu.		
LOCATION :		Valliyar River		
Sampling Period		November 23 & January 24		
Sample Description By Customer		River Water		
S.No	PARAMETERS	UNITS	MONTH	
			Nov-23	Jan-24
1	Colour	HU	5	5
2	Odour	-	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable
4	Turbidity	NTU	4	4
5	pH @ 25°C	-	7.6	7.0
6	Total Hardness as CaCO ₃	mg/l	51	42
7	Iron as Fe	mg/l	0.26	0.28
8	Chloride as Cl ⁻	mg/l	28	23
9	Free Residual Chlorine	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
10	Fluoride as F	mg/l	BDL(DL:0.1)	0.25
11	Total Dissolved Solids	mg/l	136	104
12	Calcium as Ca	mg/l	14	12
13	Magnesium as Mg	mg/l	4	3
14	Sulphate as SO ₄	mg/l	11	7
15	Nitrate as NO ₃	mg/l	1.8	1.7
16	Phenolic Compounds as C ₆ H ₅ 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 ₃	mg/l	49	31
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	0.05	0.06
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	11	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 ⁶⁺	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
35	Dissolved Oxygen	mg/l	6.8	6.6
36	Depth of Water	ft	1.0	1.8
Microbiology:				
37	Total Coliform	Per 100ml	Absent	Absent

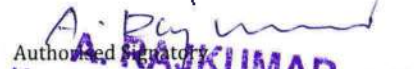
BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd

Verified by 

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Authorized Signatory

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CIN : U93000TN2000PTC043869

www.ctllabs.in

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		Ambient Air Quality											
Sampling Period		October 23 - March 24											
Sampling Method		IS 5182 (Part V) and (Part XIV)						Sampled By		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	µg/m³	ng/m³	ng/m³	µg/m³
Oct-23	TOP OF THE CANTEN	22.8	46.2	4.8	9.7	21.4	BDL(DL:0.1)	BDL (DL:1.15)	17.1	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE CIVIL DEPARTMENT	23.5	48.9	4.5	10.2	18.8	BDL(DL:0.1)	BDL (DL:1.15)	13.5	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE SECURITY TOWER - 6 (NEAR GUEST HOUSE)	30.5	62.9	10.7	24.1	20.5	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)
	TOP OF THE DISPENSARY	24.1	50.8	5.9	13.5	20.1	BDL(DL:0.1)	BDL (DL:1.15)	16.2	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
Nov-23	TOP OF THE CANTEN	23.2	48.1	5.5	11.3	26.5	BDL(DL:0.1)	BDL (DL:1.15)	20.6	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE CIVIL DEPARTMENT	26.1	53.5	6.3	13.5	21.8	BDL(DL:0.1)	BDL (DL:1.15)	14.2	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE SECURITY TOWER - 6 (NEAR GUEST HOUSE)	33.8	69.1	12.4	27.9	24.5	BDL(DL:0.1)	BDL (DL:1.15)	20.2	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE DISPENSARY	27.3	58.6	7.9	16.4	23.2	BDL(DL:0.1)	BDL (DL:1.15)	18.7	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
Dec-23	TOP OF THE CANTEN	24.1	50.5	4.9	10.6	20.1	BDL(DL:0.1)	BDL (DL:1.15)	16.8	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE CIVIL DEPARTMENT	22.6	47.9	5.8	12.1	25.5	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)
	TOP OF THE SECURITY TOWER - 6	28.7	60.5	9.2	21.5	23.7	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)
	TOP OF THE DISPENSARY	25.1	52.6	8.2	17.7	22.8	BDL(DL:0.1)	BDL (DL:1.15)	19.4	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
Jan-24	TOP OF THE GUEST HOUSE	22.6	48.9	4.4	11.5	23.1	BDL(DL:0.1)	BDL (DL:1.15)	18.2	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE ADMIN BUILDING	32.1	66.5	7.6	16.2	28.1	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)
	TOP OF THE FIRE PUMP ROOM	47.1	88.6	15.2	32.8	29.2	BDL(DL:0.1)	BDL (DL:1.15)	20.5	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE CANTEN BUILDING	26.2	57.9	6.3	13.5	24.1	BDL(DL:0.1)	BDL (DL:1.15)	15.8	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
Feb-24	TOP OF THE SECURITY TOWER - 6	35.1	72.5	10.4	24.7	38.2	BDL(DL:0.1)	BDL (DL:1.15)	22.5	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE CIVIL DEPARTMENT	30.8	62.5	7.1	13.5	34.8	BDL(DL:0.1)	BDL (DL:1.15)	19.1	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE DISPENSARY	33.9	66.7	11.5	22.6	30.2	BDL(DL:0.1)	BDL (DL:1.15)	24.7	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE SECURITY TOWER - 2	57.1	94.3	8.0	17.3	42.1	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)
Mar-24	TOP OF THE GUEST HOUSE	33.7	69.8	7.6	13.5	44.9	BDL(DL:0.1)	BDL (DL:1.15)	18.2	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE ADMIN BUILDING	26.5	57.2	8.9	17.3	40.5	BDL(DL:0.1)	BDL (DL:1.15)	17.3	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE FIRE PUMP ROOM	47.4	92.6	14.8	20.5	53.7	BDL(DL:0.1)	BDL (DL:1.15)	26.2	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:0.5)
	TOP OF THE CANTEN BUILDING	28.9	61.4	7.7	15.2	48.7	BDL(DL:0.1)	BDL (DL:1.15)	20.5	BDL(DL:1.0)	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL: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

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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		October 2023- January 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 ³	mg/Nm ³	mg/Nm ³	mg/Nm ³	mg/Nm ³
Oct-23	22 TPH FBD CHIMNEY	48	154	61.2	BDL(DL:0.2)	118
	GARNET SD NO.701 CHIMNEY	Under Maintenance				
	ILMENITE SD NO.351 CHIMNEY	14	5	36.8	BDL(DL:0.2)	80
	ZIRCON SD NO.851 CHIMNEY	19	BDL(DL:3.0)	24.8	BDL(DL:0.2)	92
	RUTILE SD NO.401 CHIMNEY	17	BDL(DL:3.0)	46.2	BDL(DL:0.2)	89
	2 TPH FBD CHIMNEY	Under Maintenance				
Nov-23	22 TPH FBD CHIMNEY	56	139	57.5	BDL(DL:0.2)	112
	GARNET SD NO.701 CHIMNEY	10	6	39.2	BDL(DL:0.2)	80
	ILMENITE SD NO.351 CHIMNEY	18	BDL(DL:3.0)	34.2	BDL(DL:0.2)	75
	ZIRCON SD NO.851 CHIMNEY	14	BDL(DL:3.0)	20.8	BDL(DL:0.2)	70
	RUTILE SD NO.401 CHIMNEY	12	BDL(DL:3.0)	41.8	BDL(DL:0.2)	85
	2 TPH FBD CHIMNEY	11	5	29.7	BDL(DL:0.2)	76
Dec-23	22 TPH FBD CHIMNEY	44	149	60.1	BDL(DL:0.2)	121
	GARNET SD NO.701 CHIMNEY	12	5	35.8	BDL(DL:0.2)	74
	ILMENITE SD NO.351 CHIMNEY	15	BDL(DL:3.0)	32.8	BDL(DL:0.2)	69
	ZIRCON SD NO.851 CHIMNEY	18	BDL(DL:3.0)	22.6	BDL(DL:0.2)	67
	RUTILE SD NO.401 CHIMNEY	14	BDL(DL:3.0)	39.6	BDL(DL:0.2)	78
	2 TPH FBD CHIMNEY	13	6	31.4	BDL(DL:0.2)	72
Jan-24	22 TPH FBD CHIMNEY	53	162	65.9	BDL(DL:0.2)	134
	GARNET SD NO.701 CHIMNEY	15	6	38.2	BDL(DL:0.2)	86
	ILMENITE SD NO.351 CHIMNEY	19	BDL(DL:3.0)	35.5	BDL(DL:0.2)	79
	ZIRCON SD NO.851 CHIMNEY	16	BDL(DL:3.0)	25.1	BDL(DL:0.2)	59
	RUTILE SD NO.401 CHIMNEY	18	BDL(DL:3.0)	43.8	BDL(DL:0.2)	82
	2 TPH FBD CHIMNEY	16	BDL(DL:3.0)	28.6	BDL(DL:0.2)	68
Feb-24	22 TPH FBD CHIMNEY	42	144	58.6	BDL(DL:0.2)	120
	GARNET SD NO.701 CHIMNEY	11	5	34.7	BDL(DL:0.2)	79
	ILMENITE SD NO.351 CHIMNEY	14	BDL(DL:3.0)	33.6	BDL(DL:0.2)	72
	ZIRCON SD NO.851 CHIMNEY	15	BDL(DL:3.0)	23.8	BDL(DL:0.2)	63
	RUTILE SD NO.401 CHIMNEY	16	BDL(DL:3.0)	45.9	BDL(DL:0.2)	93
	2 TPH FBD CHIMNEY	14	BDL(DL:3.0)	26.9	BDL(DL:0.2)	62
Mar-24	22 TPH FBD CHIMNEY	60	157	63.5	BDL(DL:0.2)	138
	GARNET SD NO.701 CHIMNEY	14	7	36.5	BDL(DL:0.2)	83
	ILMENITE SD NO.351 CHIMNEY	11	BDL(DL:3.0)	30.8	BDL(DL:0.2)	68
	ZIRCON SD NO.851 CHIMNEY	19	BDL(DL:3.0)	26.1	BDL(DL:0.2)	72
	RUTILE SD NO.401 CHIMNEY	13	BDL(DL:3.0)	48.2	BDL(DL:0.2)	101
	2 TPH FBD CHIMNEY	12	BDL(DL:3.0)	29.1	BDL(DL:0.2)	70

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

END OF REPORT

For Chennai Testing Laboratory

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Authorized Signatory
G. MANIKANDAN
Head, Environment Division
(CHEMICAL)

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CIN : U93000TN2000PTC043869

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TEST REPORT

Customer Name & Address				M/S. IREL(India) Limited., (A Govt of India Undertaking) Manavalakurichi-629 252,Kanyakumari District,Tamil Nadu.											
Sample Description				ILLUMINATION											
Sampling Period				January 24-March 24											
Sampled By				Chennai Testing Laboratory Pvt. Ltd.,											
Month				Jan-24				Feb-24				Mar-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	-	19260	15992	184	140	22406	17625	192	146	23878	18015	186	139
2	HUP YARD	15	-	5400	1865	116	88	6100	2028	120	94	6325	2196	116	88
3	TIPPER	50	-	286	171	289	362	291	184	298	346	312	191	275	325
4	HUP YARD RAMP	10	-	79495	42681	264	160	86295	44558	271	168	88597	45725	268	157
5	GUEST HOUSE ROAD	10	-	82419	44117	152	79	88721	47951	164	75	89721	46881	173	81
6	MAIN GATE ENTRY	10	-	81995	43664	126	72	87998	45785	121	68	89552	46772	133	72
7	SPILLAGE CLEANING OF MSP	50	-	240	112	133	69	3588	2265	173	77	4102	2378	169	74
8	CONVEYORS -MSP BC 101	40	-	288	196	87	74	315	206	96	81	336	212	102	88
9	CONVEYORS -MSP BC 102	40	-	2196	1582	188	102	2300	1655	200	118	2728	1973	256	135
10	MSP-22 TPH FBD	50	-	368	173	140	94	553	228	165	105	589	241	173	121
11	MSP-MONAZITE SAND HEATER	50	-	291	160	319	188	312	166	326	194	301	168	315	202
12	MSP-ILMENITE SHAFT DRIER	50	-	380	172	226	163	408	188	235	186	385	242	248	191
13	MSP-GARNET SCREEN	50	-	275	156	210	114	302	160	226	130	328	296	237	144
14	VALLIYAR PUMP HOUSE	40	-	160	110	91	63	173	128	88	59	182	135	82	55
15	11 KV SUBSTATION	100	50	258	144	133	105	359	169	140	118	282	245	136	112
16	DISPENSARY	50	-	310	226	189	120	365	233	194	136	329	256	188	129
17	PERIYAVILAI BEACH	30	-	84928	45771	291	488	90557	49638	286	449	91127	50265	273	438
18	ELECTRICAL SECTION	100	50	769	424	215	155	821	510	229	163	799	436	235	181
19	ZIRCON BAGGING	50	-	96	69	164	119	116	80	173	126	246	172	164	130
20	SPIRAL DISTRIBUTOR	40	-	610	322	266	297	788	356	289	312	772	311	276	298

END OF REPORT

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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				October 2023- December 2023											
Sampled By				Chennai Testing Laboratory Pvt. Ltd.,											
Month				Oct-23				Nov-23				Dec-23			
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	-	14410	12950	210	136	15492	13840	194	121	17429	14265	178	135
2	HUP YARD	15	-	2730	1760	98	69	3390	1904	95	72	4126	1792	102	81
3	TIPPER	50	-	295	202	265	344	263	152	288	319	278	164	256	342
4	HUP YARD RAMP	10	-	70600	42210	274	142	68815	37863	291	166	70695	40415	284	174
5	GUEST HOUSE ROAD	10	-	69698	39940	109	65	67340	36645	135	72	69882	38326	146	81
6	MAIN GATE ENTRY	10	-	72200	44200	114	69	64538	35496	106	65	69577	39433	112	69
7	SPILLAGE CLEANING OF MSP	50	-	118	64	106	60	166	60	98	57	180	74	126	63
8	CONVEYORS -MSP BC 101	40	-	270	204	81	64	229	196	75	61	264	212	92	76
9	CONVEYORS -MSP BC 102	40	-	1823	1418	205	153	1547	1398	188	126	1926	1445	165	92
10	MSP-22 TPH FBD	50	-	267	111	110	84	293	146	105	81	288	139	128	84
11	MSP-MONAZITE SAND HEATER	50	-	242	196	326	210	251	132	298	188	274	148	306	175
12	MSP-ILMENITE SHAFT DRIER	50	-	286	158	215	161	317	164	225	156	396	191	210	144
13	MSP-GARNET SCREEN	50	-	212	151	252	134	258	147	242	122	281	163	235	120
14	VALLIYAR PUMP HOUSE	40	-	66	48	54	45	71	52	60	48	77	58	66	54
15	11 KV SUBSTATION	100	50	160	92	145	69	186	105	139	73	219	126	120	98
16	DISPENSARY	50	-	226	154	188	112	253	188	175	106	289	199	166	112
17	PERIYAVILLAI BEACH	30	-	74460	46800	243	506	68350	39261	266	531	70395	40717	282	460
18	ELECTRICAL SECTION	100	50	745	453	221	141	649	398	233	158	712	408	196	142
19	ZIRCON BAGGING	50	-	86	62	216	69	98	70	191	64	104	76	178	125
20	SPIRAL DISTRIBUTOR	40	-	328	256	288	426	434	283	245	391	472	295	221	209

END OF REPORT

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For Chennai Testing Laboratory

Authorized Signatory

Page 1 of 1

G. MANIKANDAN
Head - Environment Division
(CHEMICAL)

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ISO 9001:2015 & ISO/IEC 17025:2005
NABL Quality Management System
Implemented Laboratory

CHEMICAL TEST REPORT

WASTE WATER ANALYSIS

Report No	TC6429230000000140F	Report Date	16.10.2023
Customer Name & Address: M/s.Indian Rare Earths Limited, (A Government of India Undertaking) Manavalakurichi-629 252. Kanyakumari (Dt).		Sample Ref. No.	AAL/WR/152/23-24
		Sample Description	STP Treated Water
		Sample Drawn By	Customer
		Sample condition	Fit For Analysis
		Sample Collected Date	10.10.2023
		Quantity of Sample	2 Litters
		Sample Received on	11.10.2023
		Test Commenced on	11.10.2023
		Test Completed on	14.10.2023

Sl. No.	PARAMETER(s)	TEST METHOD	UNIT	TNPCB NORMS	RESULT
1	pH @25°C	IS 3025 Part 11 :1983	-	5.5 to 9.0	7.51
2	Total Suspended Solids @105°C	IS 3025 Part 17 :1984	mg/l	30	7
3	Chemical Oxygen Demand (COD)	IS 3025 Part 58 :2006	mg/l	100	59
4	Biological Oxygen Demand (BOD)@27°C for 3 days	IS 3025 Part 44 :1993	mg/l	20	9

Note: All above Parameters within the Acceptable Limits



AUTHORIZED SIGNATORY

R. Jeyaraj
Lab Manager

*** End of Report***

Note: This report relates only to the particular sample submitted for test. Any correction not attested shall invalidate this report. This report shall not be reproduced except in full without our written approval. Sample are not drawn by us unless otherwise stated. Retention period of tested samples 15 days only unless otherwise specified

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TC-6429

CHEMICAL TEST REPORT

WASTE WATER ANALYSIS					
Report No	TC642923000000302F		Report Date	17.11.2023	
Customer Name & Address: M/s.Indian Rare Earths Limited, (A Government of India Undertaking) Manavalakurichi - 629 252. Kanyakumari (Dt).			Sample Ref. No.	AALWR/302/23-24	
			Sample Description	STP Treated Water	
			Sample Drawn By	Customer	
			Sample condition	Fit For Analysis	
			Sample Collected Date	13.11.2023	
			Quantity of Sample	2 Liters	
			Sample Received on	14.11.2023	
			Test Commenced on	14.11.2023	
			Test Completed on	17.11.2023	
Sl. No.	PARAMETER(s)	TEST METHOD	UNIT	TNPCB NORMS	RESULT
1	pH @25 ^o C	IS 3025 Part 11 :1983	-	5.5 to 9.0	7.15
2	Total Suspended Solids @105 ^o C	IS 3025 Part 17 :1984	mg/l	30	4
3	Chemical Oxygen Demand (COD)	IS 3025 Part 58 :2006	mg/l	100	40
4	Biological Oxygen Demand (BOD)@27 ^o C for 3 days	IS 3025 Part 44 :1993	mg/l	20	9

Note: All above Parameters within the Acceptable Limits



AUTHORIZED SIGNATORY

Lab Manager

*** End of Report***

Page 1 of 1

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21/12/23

CHEMICAL TEST REPORT

WASTE WATER ANALYSIS			
Report No	TC64292300000000132F	Report Date	16.12.2023
Customer Name & Address: M/s.Indian Rare Earths Limited, (A Government of India Undertaking) Manavalakurichi-629 252. Kanyakumari (Dt).		Sample Ref. No.	AALWR/143/23-24
		Sample Description	STP Treated Water
		Sample Drawn By	Customer
		Sample condition	Fit For Analysis
		Sample Collected Date	11.12.2023
		Quantity of Sample	2 Litters
		Sample Received on	12.12.2023
		Test Commenced on	12.12.2023
		Test Completed on	16.12.2023

Sl. No.	PARAMETER(s)	TEST METHOD	UNIT	TNPCB NORMS	RESULT
1	pH @25°C	IS 3025 Part 11 :1983	-	5.5 to 9.0	7.46
2	Total Suspended Solids @105°C	IS 3025 Part 17 :1984	mg/l	30	5
3	Chemical Oxygen Demand (COD)	IS 3025 Part 58 :2006	mg/l	100	90
4	Biological Oxygen Demand (BOD)@27°C for 3 days	IS 3025 Part 44 :1993	mg/l	20	6

Note: All above Parameters within the Acceptable Limits



R. Jeyaraj
AUTHORIZED SIGNATORY

Lab Manager

*** End of Report***

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TC-6429

CHEMICAL TEST REPORT

16/1/24

WASTE WATER ANALYSIS					
Report No	TC642923000000315F		Report Date	08.01.2024	
Customer Name & Address: M/s.Indian Rare Earths Limited, (A Government of India Undertaking) Manavalakurichi - 629 252. Kanyakumari (Dt).			Sample Ref. No.	AAL/WR/315/23-24	
			Sample Description	STP Treated Water	
			Sample Drawn By	Customer	
			Sample condition	Fit For Analysis	
			Sample Collected Date	02.01.2024	
			Quantity of Sample	2 Liters	
			Sample Received on	03.01.2024	
			Test Commenced on	03.01.2024	
			Test Completed on	08.01.2024	
Sl. No.	PARAMETER(s)	TEST METHOD	UNIT	TNPSB NORMS	RESULT
1	pH @25°C	IS 3025 Part 11 :1983	-	5.5 to 9.0	7.44
2	Total Suspended Solids @105°C	IS 3025 Part 17 :1984	mg/l	30	6.2
3	Chemical Oxygen Demand (COD)	IS 3025 Part 58 :2006	mg/l	100	66
4	Biological Oxygen Demand (BOD)@27°C for 3 days	IS 3025 Part 44 :1993	mg/l	20	3

Note: All above Parameters within the Acceptable Limits.



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R. Princy
Lab Manager

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CHEMICAL TEST REPORT

17/2/24

WASTE WATER ANALYSIS					
Report No	TC642923000000324F		Report Date	14.02.2024	
Customer Name & Address: M/s.Indian Rare Earths Limited, (A Government of India Undertaking) Manavalakurichi - 623 252. Kanyakumari (Dt).	Sample Ref. No.		AAL/WR/324/23-24		
	Sample Description		STP Treated Water		
	Sample Drawn By		Customer		
	Sample condition		Fit For Analysis		
	Sample Collected Date		08.02.2024		
	Quantity of Sample		2 Liters		
	Sample Received on		09.02.2024		
	Test Commenced on		10.02.2024		
Test Completed on		14.02.2024			

Sl. No.	PARAMETER(s)	TEST METHOD	UNIT	TNPCB NORMS	RESULT
1	pH @25 ^o C	IS 3025 Part 11 :1983	-	5.5 to 9.0	7.85
2	Total Suspended Solids @105 ^o C	IS 3025 Part 17 :1984	mg/l	30	7.1
3	Chemical Oxygen Demand (COD)	IS 3025 Part 58 :2006	mg/l	100	70
4	Biological Oxygen Demand (BOD)@27 ^o C for 3 days	IS 3025 Part 44 :1993	mg/l	20	4

Note: All above Parameters within the Acceptable Limits.

P. M.
CHEMIST



P. L.
AUTHORIZED SIGNATORY

End of Report

Page 1 of 1

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CHEMICAL TEST REPORT

WASTE WATER ANALYSIS					
Report No	TC642923000000330F		Report Date	11.03.2024	
Customer Name & Address: M/s.Indian Rare Earths Limited, (A Government of India Undertaking) Manavalakurichi - 629 252. Kanyakumari (Dt).			Sample Ref. No.	AAL/WR/330/23-24	
			Sample Description	STP Treated Water	
			Sample Drawn By	Customer	
			Sample condition	Fit For Analysis	
			Sample Collected Date	06.03.2024	
			Quantity of Sample	2 Liters	
			Sample Received on	07.03.2024	
			Test Commenced on	08.03.2024	
			Test Completed on	11.03.2024	
Sl. No.	PARAMETER(s)	TEST METHOD	UNIT	TNPCB NORMS	RESULT
1	pH @25 ^o C	IS 3025 Part 11 :1983	-	5.5 to 9.0	7.69
2	Total Suspended Solids @105 ^o C	IS 3025 Part 17 :1984	mg/l	30	1.8
3	Chemical Oxygen Demand (COD)	IS 3025 Part 58 :2006	mg/l	100	39
4	Biological Oxygen Demand (BOD)@27 ^o C for 3 days	IS 3025 Part 44 :1993	mg/l	20	1.66

Note: All above Parameters within the Acceptable Limits.

Priya.M
CHEMIST



*** End of Report***

Page 1 of 1

P. L. Srinivas
AUTHORIZED SIGNATORY



CIN : U93000TN2000PTC043869

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TEST REPORT

CUSTOMER NAME :		M/S. IREL(India) Limited, (A Govt of India Undertaking) Manavalakurichi-629 252. Kanyakumari District,Tamil Nadu.		
LOCATION :		IREL Guest House		
Sampling Period		November 23 & January 24		
Sample Description By Customer		Open Well Water		
S.No	PARAMETERS	UNITS	MONTH	
			Nov-23	Jan-24
1	Colour	HU	2	2
2	Odour	-	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable
4	Turbidity	NTU	< 1	< 1
5	pH @ 25°C	-	8.4	7.7
6	Total Hardness as CaCO ₃	mg/l	245	286
7	Iron as Fe	mg/l	0.02	0.04
8	Chloride as Cl ⁻	mg/l	88	70
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	464	440
12	Calcium as Ca	mg/l	72	65
13	Magnesium as Mg	mg/l	16	30
14	Sulphate as SO ₄	mg/l	32	29
15	Nitrate as NO ₃	mg/l	5.6	4.9
16	Phenolic Compounds as C ₆ H ₅ 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 ₃	mg/l	200	252
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	0.03	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	< 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 ⁶⁺	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
35	Dissolved Oxygen	mg/l	7.3	7.2
36	Depth of Water	ft	6.2	8.2
Microbiology:				
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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Authorised Signatory

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

Page 1 of 1

A - Super 19, TVK, Industrial Estate, Guindy, Chennai - 600 032, Tamil Nadu, India

Phone : +91-44-2250 1757 | E-mail : chennai@testing@chennai-testing.com



CIN : U93000TN2000PTC043869

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TEST REPORT

CUSTOMER NAME :		M/S. IREL(India) Limited, (A Govt of India Undertaking) Manavalakurichi-629 252. Kanyakumari District, Tamil Nadu.		
LOCATION :		Chinna Vilai		
Sampling Period		November 23 & January 24		
Sample Description By Customer		Open Well Water		
S.No	PARAMETERS	UNITS	MONTH	
			Nov-23	Jan-24
1	Colour	HU	2	2
2	Odour	-	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable
4	Turbidity	NTU	< 1	1
5	pH @ 25°C	-	7.9	7.7
6	Total Hardness as CaCO ₃	mg/l	231	331
7	Iron as Fe	mg/l	0.04	0.07
8	Chloride as Cl ⁻	mg/l	115	87
9	Free Residual Chlorine	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
10	Fluoride as F	mg/l	0.12	0.24
11	Total Dissolved Solids	mg/l	584	542
12	Calcium as Ca	mg/l	58	98
13	Magnesium as Mg	mg/l	21	21
14	Sulphate as SO ₄	mg/l	48	29
15	Nitrate as NO ₃	mg/l	8.7	7.5
16	Phenolic Compounds as C ₆ H ₅ 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 ₃	mg/l	260	314
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	0.02	0.05
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 ⁶⁺	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
35	Dissolved Oxygen	mg/l	7.0	6.9
36	Depth of Water	ft	4.8	7.9
Microbiology:				
37	Total Coliform	Per 100ml	Absent	Absent

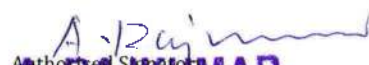
BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd

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Page 1 of 1

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CIN : U93000TN2000PTC043869

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TEST REPORT

CUSTOMER NAME :		M/S. IREL(India) Limited., (A Govt of India Undertaking) Manavalakurichi-629 252. Kanyakumari District, Tamil Nadu.		
LOCATION :		Thattai Vilai		
Sampling Period		November 23 & January 24		
Sample Description By Customer		Open Well Water		
S.No	PARAMETERS	UNITS	MONTH	
			Nov-23	Jan-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	7.0
6	Total Hardness as CaCO ₃	mg/l	162	172
7	Iron as Fe	mg/l	0.07	0.06
8	Chloride as Cl ⁻	mg/l	113	93
9	Free Residual Chlorine	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
10	Fluoride as F	mg/l	0.15	0.10
11	Total Dissolved Solids	mg/l	460	424
12	Calcium as Ca	mg/l	45	46
13	Magnesium as Mg	mg/l	12	14
14	Sulphate as SO ₄	mg/l	74	63
15	Nitrate as NO ₃	mg/l	7.5	5.9
16	Phenolic Compounds as C ₆ H ₅ 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 ₃	mg/l	147	133
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)	0.05
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 ⁶⁺	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
35	Dissolved Oxygen	mg/l	6.9	7.0
36	Depth of Water	ft	5.2	6.9
Microbiology:				
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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Authorized Signatory
A. RAJKUMAR
Head - Water & Soil Division

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TEST REPORT

CUSTOMER NAME :		M/S. IREL(India) Limited., (A Govt of India Undertaking) Manavalakurichi-629 252. Kanyakumari District, Tamil Nadu.		
LOCATION :		Panah Vilai		
Sampling Period		November 23 & January 24		
Sample Description By Customer		Open Well Water		
S.No	PARAMETERS	UNITS	MONTH	
			Nov-23	Jan-24
1	Colour	HU	2	2
2	Odour	-	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable
4	Turbidity	NTU	< 1	< 1
5	pH @ 25°C	-	7.2	7.7
6	Total Hardness as CaCO ₃	mg/l	124	86
7	Iron as Fe	mg/l	0.02	0.05
8	Chloride as Cl ⁻	mg/l	68	78
9	Free Residual Chlorine	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
10	Fluoride as F	mg/l	0.10	BDL(DL:0.1)
11	Total Dissolved Solids	mg/l	312	290
12	Calcium as Ca	mg/l	43	28
13	Magnesium as Mg	mg/l	4	4
14	Sulphate as SO ₄	mg/l	36	26
15	Nitrate as NO ₃	mg/l	3.7	4.8
16	Phenolic Compounds as C ₆ H ₅ 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 ₃	mg/l	94	70
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)	0.04
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 ⁶⁺	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
35	Dissolved Oxygen	mg/l	7.1	6.9
36	Depth of Water	ft	4.6	6.8
Microbiology:				
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

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. Rajkumar
Authorized Signatory
A. RAJKUMAR
Head Water & Soil Division
(CHEMICAL)

Page 1 of 1

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

Phone : +91-44-2250 1757 | E-mail : chennaiesting@chennaiteestinglab.com



CIN : U93000TN2000PTC043869

www.ctllabs.in

TEST REPORT

CUSTOMER NAME :		M/S. IREL(India) Limited, (A Govt of India Undertaking) Manavalakurichi-629 252, Kanyakumari District, Tamil Nadu.		
LOCATION :		Kootumangalam		
Sampling Period		November 23 & January 24		
Sample Description By Customer		Open Well Water		
S.No	PARAMETERS	UNITS	MONTH	
			Nov-23	Jan-24
1	Colour	HU	2	2
2	Odour	-	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable
4	Turbidity	NTU	2	< 1
5	pH @ 25°C	-	8.2	7.8
6	Total Hardness as CaCO ₃	mg/l	152	142
7	Iron as Fe	mg/l	0.14	0.02
8	Chloride as Cl ⁻	mg/l	154	152
9	Free Residual Chlorine	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
10	Fluoride as F	mg/l	0.15	0.11
11	Total Dissolved Solids	mg/l	468	462
12	Calcium as Ca	mg/l	46	42
13	Magnesium as Mg	mg/l	9	9
14	Sulphate as SO ₄	mg/l	32	26
15	Nitrate as NO ₃	mg/l	6.2	6.4
16	Phenolic Compounds as C ₆ H ₅ 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 ₃	mg/l	88	92
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	0.09	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	< 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 ⁶⁺	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
35	Dissolved Oxygen	mg/l	7.0	7.1
36	Depth of Water	ft	3.8	6.5
Microbiology:				
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

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Authorized Signatory

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

Page 1 of 1

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

Phone : +91-44-2250 1757 | E-mail : chennaitesting@chennaitesting.com



CIN : U93000TN2000PTC043869

www.ctllabs.in

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		November 2023 & January 2024				
Sampling Method		CTL/SOP//INS/035				
SL.NO	LOCATION	NOISE LEVEL dB (A)Leq				Remarks
		Nov-23		Jan-24		
		Day Noise	Night Noise	Day Noise	Night Noise	
I-MINERAL SEPARATION PLANT (MSP)						
1	Zircon Section	80.2	78.3	80.9	79.3	Ear Muff/ EarPlug is to be used
2	22 TPH FBD Control Cabin	69.6	66.2	71.4	71.2	-
3	Rutile Section -Bagging Area	81.4	79.5	83.3	82.5	Ear Muff/ EarPlug is to be used
4	Zircon Section - Final Air Tables	82.5	80.6	85.3	84.3	Ear Muff/ EarPlug is to be used
5	Zircon Section - Primary Air Tables	78.3	75.5	85.1	84.2	Ear Muff/ EarPlug is to be used
6	Shift Incharge Cabin	63.9	60.8	64.5	63.6	-
7	2 TPH FBD Control Cabin	64.1	61.4	76.3	75.4	Ear Muff/ EarPlug is to be used
8	Air Tables in the Zircon Wet	82.5	79.3	79.5	79.4	Ear Muff/ EarPlug is to be used
9	Zircon Bagging Area	77.4	75.9	80.4	79.8	Ear Muff/ EarPlug is to be used
10	Garnet Final Collecting Area	80.6	78.8	83.9	78.7	Ear Muff/ EarPlug is to be used
11	Monozite Section	78.3	76.5	85.6	84.7	Ear Muff/ EarPlug is to be used
12	Generator Operator Cabin	56.5	52.9	57.3	54.4	-
II- HUP						
13	Operator Control Cabin - 1st Floor	64.3	62.6	62.5	61.3	-
14	Bunker Area	78.2	75.9	79.2	76.4	Ear Muff/ EarPlug is to be used
15	Shift Incharge Cabin 2nd Floor	66.5	62.8	64.1	62.1	-
III- PUMP HOUSE						
16	Pump House Operator Cabin Inside	64.3	62.5	66.5	63.4	-
17	Pump House Operator Cabin Outside	76.5	75.1	73.8	71.6	-
IV-OUT SIDE PLANT						
18	Near Electrical Work shop	57.6	52.5	55.5	51.6	-
19	Housing Complex (Nr Water Tank)	48.9	45.2	51.4	46.7	-
20	Guest House	56.5	47.4	59.1	43.1	-
V-HEM MACHINARY						
21	Front End Loader Inside Cabin (TN69 BD 3646)	84.3	82.8	85.5	81.0	Ear Muff/ EarPlug is to be used
22	Dipper (TN 1B AQ 2777)	76.5	75.2	77.5	76.4	-
23	Excavator (IS 205LC)	79.3	77.9	78.9	77.5	Ear Muff/ EarPlug is to be used
VI- MINING SITES						
24	Periavilai Beach	61.6	60.5	62.3	64.1	-
25	Chinnavilai Beach	62.9	59.8	64.1	65.6	-
26	Sea Side	63.1	61.2	63.9	63.8	-
27	Front Entrance (North)	59.5	55.6	0.0	52.8	-
28	East Side of IREL	51.7	48.5	48.9	46.5	-
29	South Side of IREL	60.6	61.8	63.1	62.6	-
30	West Side of IREL	61.8	59.5	62.4	60.1	-

END OF REPORT

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For Chennai Testing Laboratory

Verified by

A - Super 19, T.V.K. Industrial Estate, Guindy, Chennai - 600 002

Phone : +91-44-2250 1757 | E-mail : chennaitesting@chennaitestinglab.com

Page 1 of 1



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: 47741,47743,47745	Report Issue Date : 19.12.2023
Invoice Details: 10237/Dt.01.12.2023/Rs.4,956/-	

Customer Name & Address	: IREL (India) Limited,
Contact No / Email.ID	Manavalakurich Post - 629 252 Kanyakumari District.
Sample Name	: 47741,47743,47745
Sample Description	: 1) Drinking water tap @ Canteen, 2) Drinking water tap @ Admin Office, 3) Drinking water tap @ Guest House well water tap, - Drinking Purpose
Sample Submitted by	: IREL (India) Limited
Location & Date	: Manavalakurichi
Quantity of sample Received	: 2 Litres
Sample Container	: PT Cane
Sample Condition on Receipt	: Good
Sample Received On	: 01.12.2023
Test Commenced on	: 01.12.2023
Test Completed on	: 19.12.2023
Environmental Condition	: 24.5 ⁰ C

S.No	Parameters	Test Method	Unit	Result			Specification as per IS 10500 : 2012	
				47776	47778	47780		
1	pH	IS 3025 Part 11-1983	-	6.71	6.78	7.41	6.5-8.5	6.5-8.5
2	Total Hardness as CaCO ₃	IS 3025 Part 21-20009	mg/L	50	64	178	200	600
3	Total Alkalinity	IS 3025-Part 23-1986	mg/L	24	44	96	200	600
4	Chloride as Cl	IS 3025-Part 32-1988	mg/L	16	40	48	250	1000
5	Sulphate as SO ₄	IS 3025-Part 24-1986	mg/L	<5	<5	<5	200	400
6	Nitrate as NO ₃	APHA 23rd Edition 2017-4500 -NO ₃ 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

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: 47741-47746

Report Issue Date : 19.12.2023

Invoice Details: 10237/ Dt.01.12.2023

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	71	134	262	500	2000
13	Conductivity	APHA 23rd Edition 2017 - 2510 B	µS/cm	107	203	397	-	-
14	P – Alkalinity	IS 3025-Part 23-1983	mg/L	0	0	0	-	-
15	Calcium	APHA 23rd Edition 2017 - 3500 Ca B	mg/L	16	22	50	75	200
16	Magnesium	APHA 23rd Edition 2017 - 3500 Mg B	mg/L	5	8	11	30	100
17	Sodium	APHA 23rd Edition 2017 - 3500 Na B	mg/L	2	17	18	-	-
18	Potassium	APHA 23rd Edition 2017 - 3500 K B	mg/L	0	4	6	-	-
19	Iron	APHA 23rd Edition 2017 - 3500 Fe B	mg/L	0.24	0.12	0.24	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	0.04	0.5	0.5
22	Nitrite as NO ₂	APHA 23rd Edition 2017 - 4500-NO2 B	mg/L	0.03	0.03	0.03	-	-
23	Total Phosphate as PO ₄	APHA 23rd Edition 2017 - 4500 P- D	mg/L	0.10	0.10	0.10	-	-
24	Tidys	APHA 23rd Edition 2017 - 4500 O - B	mg/L	0.28	0.24	0.20	-	-
25	Residual Chlorine as RC	IS / APHA	mg/L	0	0	0	0.2	0.2
				47777	47779	47781		
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

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

[Signature]
19.12.23

Authorised Signatory

B.Hari Govind - Assistant Executive Engineer

Note:

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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
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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

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.



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



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

Period: October 2023 to March 2024

Sl.No.	Activities	Amount (Rs.)
1	Sewage Treatment operation & maintenance	3,84,286
2	AAQ & Stack Monitoring, Noise, Illumination & Water	1,43,724
3	Water & Air Consent fees, AAQ, Stack Noise and sewage Monitoring fees to TNPCB	5,79,992
4	Radioactivity & Dust Monitoring	40,000
5	Afforestation/Green Belt Development	2,83,859
6	Watering to suppress the dust & Spillage Cleaning from the Road	9,31,170
7	Maintenance of garden & lawn	3,48,678
8	Cleaning of bushes, weeds etc	4,05,025
9	Clearing drainage, Road & Valley gutter	1,30,092
10	Cleaning, Housekeeping & Up keeping works	8,42,719
11	Cleaning of Plant floor & Spillage	15,39,817.31
12	Awareness programs	50,000
13	Expenditure on CSR activities	3,17,91,000
Total		3,74,70,362

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.

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