

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI**

ORIGINAL APPLICATION NO. 74 of 2023(SZ)

Padmakumar, Kerala

Applicant

:

Vs

The Chief Secretary to Government of Kerala,
Department of Environment, Thiruvananthapuram
and others

: Respondent(s)

**REPORT FILED BY THE CHIEF ENVIRONMENTAL ENGINEER,
KERALA STATE POLLUTION CONTROL BOARD, FOR AND ON
BEHALF OF THE RESPONDENT**



Adv. Rema Smrithi.V.K

ADDITIONAL STANDING COUNSEL FOR THE THIRD RESPONDENT

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Dated this the 5th day of February 2025

Rema Smrithi. V.K, Advocate

ADDITIONAL STANDING COUNSEL FOR THE THIRD RESPONDENT

BEFORE THE HONOURABLE NATIONAL GREEN TRIBUNAL

SOUTH ZONE, CHENNAI

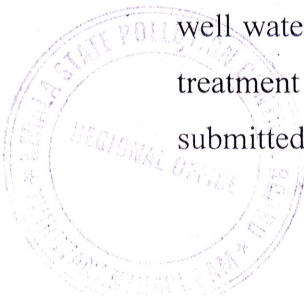
Original Application No.74 of 2023 (SZ)

Applicant : Padmakumar, Kerala
Respondents : The Chief Secretary to Government of
Kerala, Department of Environment,
Thiruvananthapuram and others

**Report filed by Chief Environmental Engineer, Kerala State
Pollution Control Board, Regional Office, Thiruvananthapuram on
behalf of The Kerala State Pollution Control Board, in Original
Application No. 74/2023.**

This is in continuation to the report submitted on 11/09/2023 by Kerala State Pollution Control Board. The Hon'ble NGT Principal Bench, New Delhi, registered a Suo Motu case (O.A. No. 502/2022) following a letter petition from Sri. Padmakumar, alleging pollution caused by M/s Kerala Minerals and Metals Limited (KMML) in Chavara, Kollam district. The petitioner alleged that KMML had been discharging acidic water for over 30 years, severely polluting the surrounding land and water bodies, making them unsuitable for use, including drinking water wells. The company was also accused of discharging acid waste into nearby water bodies, further endangering the local environment and public health.

In response, the NGT constituted a Joint Committee to investigate the matter, comprising authorities from the Central and State Pollution Control Boards, the State Wetland Authority, and the District Collector, Kollam. The committee conducted site visits and collected water and sludge samples from the affected areas as well as from inside the factory premises. The analysis report indicated significant pollution, with the well water found to be unfit for drinking. The analysis confirmed that KMML's effluent treatment plant was inadequate in meeting discharge norms. The joint committee had submitted its final report on 31/01/23 as per the Hon'ble NGT's direction. Further the



Kerala State Pollution Control Board had also submitted a status report before Hon'ble NGT dated 07/02/23. Meanwhile the Hon'ble NGT, Principal Bench transferred renumbered and transferred OA no 502/2022 to Southern Bench as OA no:74 of 2023. There after the then status of compliance by the industry was filed in the report dated 11/09/23. In accordance with the order of the Hon'ble NGT dated 20/12/24, the present status is reported here with.

An inspection was conducted by Board officials on 23/01/25 to assess the compliance status of the short-term and long-term measures proposed by the industry, as well as on the recommendations of the Joint Committee. The status of compliance is outlined below.

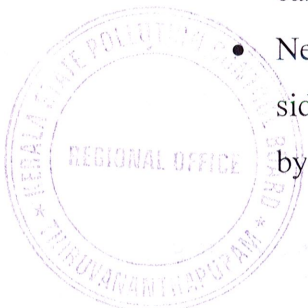
Long Term Measures.

- **Acid Regeneration Plant Modification:** It was reported that the modification of the Acid Regeneration Plant had been proposed to generate saleable Iron Oxide, for which government sanction had been granted. It was further reported that a work order had been issued to M/s Indrox Global Pvt Ltd, New Delhi vide letter dated 18/09/24 which is accepted on 15/01/25 and the design/drawing work is commenced. The expected date of completion as reported by the company is 31/05/2026.

Short term Measures

1. Construction of Garland Drain:

- New ETP sludge pond: Construction work of garland drain around new ETP sludge pond is completed.
- Old ETP/Iron Oxide Pond: Construction work finished on the west and south side of the old ETP/Iron Oxide pond. Construction work in progress on the eastern side of the pond.
- New Iron Oxide pond: Construction work started on the south, east and west sides of the New Iron Oxide Ponds. The expected date of completion as reported by the company is 30/04/2025.



2. Land Remediation work for the affected area near the KMML premises:

The land remediation for the test patch was completed and the trial report suggests that the method adopted is not improving the condition of the affected land and not to continue without further studies. It is reported that KMML had invited a global Expression of Interest (EOI) to identify suitable and competent bidders with advanced technology for land remediation and no bids were received. Subsequently, steps have been taken to seek guidance from IIT Madras to undertake the remediation on a test patch trial basis. The response from IIT Madras is currently awaited. The expected date of completion as reported by the company is 31/05/2026.

3. Solid Waste Management (In-situ/ex-situ storage):

- Geotube as a trial implementation: The geotube proposal is now considered as a secondary option by the industry, as they are progressing with trial runs on various options of value addition of Iron Oxide sludge.

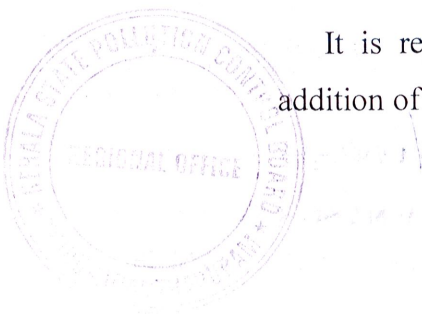
4. ETP/Iron Oxide Sludge Disposal:

M/s Miracle Sands and Chemicals, Tuticorin has been assigned to transfer the ETP sludge from the New ETP sludge pond. The transfer of ETP sludge is in progress and an approximate quantity of 28000MT of ETP sludge has been transferred by M/s Miracle Sands as on 27/01/25. It is reported that new e tender was also invited for shifting of about 20000MT of ETP sludge.

For the disposal of Iron Oxide Sludge, sales order has been issued to M/s Miracle sands. It is reported that M/s Miracle Sand and Chemicals, has applied for the approval from CPCB for trial production at their location at Tamilnadu.

5. Value Addition of by products:

It is reported that the Global EOI was invited by the industry for value addition of Iron Oxide & ETP sludge with CSIR-NIIST as technical consultant. It



is further reported that M/s Tetrabic India Pvt Ltd was selected and process for execution of agreement is in progress.

KMML has also developed an in-house technique for value addition of Iron Oxide Sludge by making Iron Sinters and the process is in trial stage.

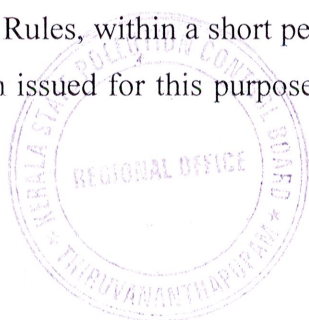
The Industry is also making iron oxide bricks using the Iron Oxide sludge and they are in the research stage for commercializing the production after conducting all required tests.

Transfer of Iron Oxide sludge to KEIL (CTSDF, Kochi):

The new Iron Oxide Pond has reached its full capacity, and M/s KMML submitted a request to the KSPCB during May 2024 for permission to transfer the Iron Oxide Sludge to the Old ETP/IOP pond. Following several discussions and consultations with the Government of Kerala, and in accordance with directions from the KSPCB, it was directed to transfer the Iron Oxide sludge to KEIL, a Common Treatment Storage Disposal Facility (CTSDF) facility in Kochi. Stringent conditions were imposed for the safe transfer of IOP sludge to CTSDF. For this a temporary sludge pond was constructed and the company cut short their production by limiting the operation to one out of the two ARP streams till date. About 75 MT of Iron Oxide Sludge is produced by the company per day.

Regular inspections are being conducted by the Board to ensure compliance, and the industry submits manifests and status bi-weekly at the District Office. A total quantity of 10,192.73 MT of Iron Oxide Sludge has been transferred to KEIL as on 26.01.25.

While granting permission for the transfer to the temporary pond inside the old IOP and from there to KEIL, the KSPCB directed that a new temporary platform be constructed in accordance with the norms specified under the Hazardous and Other Waste Management Rules, within a short period of time. The industry has reported that a work order has been issued for this purpose, and the design of the platform is currently in progress.

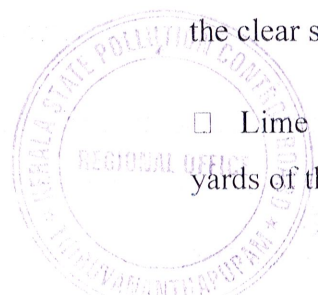


Vinaya
VINAYA. K.S

CHIEF ENVIRONMENTAL ENGINEER

Status on the recommendations of the Joint Committee.

- Timely Implementation of Long-Term and Short-Term Measures: The long-term and short-term measures proposed by the industry are outlined above.
- Revamping/Modernization of ETP: A work order has been issued for the construction of a new 6 MLD ETP at KMML, with a tentative completion target set for December 2026.
- Amendment of Integrated Consent to Operate (CTO): It was directed to amend the Integrated Consent to Operate (CTO) issued to the industry for changing the effluent standards. During the latest inspection, the industry agreed to amend the CTO at the time of its renewal, which is due in July, 2025.
- Installation of Warning Signboards: Warning signboards regarding the use of polluted water have been installed at public-accessible locations outside the industry compound.
- Permanent Capping of Old ETP/Iron Oxide Ponds: The permanent capping work of the old ETP/IOP is underway. The south-east side of the pond was observed to be newly capped during the inspection on 23/01/25.
- Prevention of Untreated Effluent Discharge outside unit Premises: Stormwater drains are being cleaned regularly to prevent the discharge of untreated effluent outside the premises or into natural drains. Lime is being added for neutralization downstream of the stormwater drain before it exits the industry premises. A delay pond is being constructed downstream of the stormwater drain that runs through the industry premises. This is aimed at providing an additional treatment to the stormwater in case of contamination with leachate within the premises.
- Process Change for Reuse/Recycling of Effluent: The company reports that the recycling of wash water within the plant is being practiced, and the Iron Oxide Slurry is neutralized before being pumped into the new Iron Oxide Pond. It is further reported that the clear slurry is recycled into the slurry preparation tank.
- Lime Treatment in the Dump Yards: Lime is being applied at the existing dump yards of the old ETP/Iron Oxide Ponds by stacking lime bags and direct dumping.



□ Water Supply and Health Camps: The industry is supplying drinking water to the nearby 7 wards. The status, as reported in OA 94/2024, is attached as Annexure II. Additionally, the industry is conducting monthly medical camps and providing medicines to residents in the nearby wards.

□ Additional storage facility for Iron Oxide Sludge: A portion of the generated Iron Oxide is regularly removed to KEIL, as mentioned above. Iron Oxide sludge is used in small quantities for brick-making as part of the industry's in-house research activities.

□ R&D for Utilization of Iron Oxide Sludge: The industry has developed an in-house technique for adding value to Iron Oxide sludge by producing Iron Sinters, and trials are currently underway, as noted above.

□ Remediation of Affected Land: Based on the study report by CSIR-NEERI, Nagpur, the industry has conducted land remediation works on a trial basis inside the premises, as outlined above.

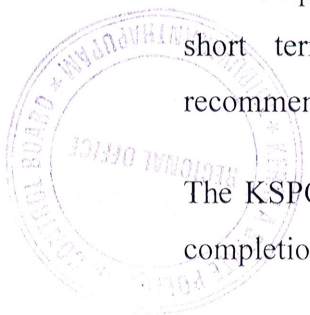
□ Compliance with CPCB Directions issued Under Section 5 of the EP Act: The industry further reports that bimonthly action-taken reports are being submitted to the CPCB Chairman regarding compliance with CPCB directions.

□ Installation of Flow Meters for Groundwater Consumption Monitoring: Monthly and quarterly reports on groundwater consumption within the unit are being submitted to KSPCB.

□ Installation of OCEMS: An OCEMS (Online Continuous Effluent Monitoring System) has been installed at the outlet of the ETP for monitoring pH, TDS, and flow rate. The timeline initially proposed by the industry, along with the due dates specified by the joint committee for the implementation of the actions, has now expired.

The company vide letter dated 27/01/25 has now submitted a compliance report on the short term and long term measures proposed by the industry and on the recommendations of the Joint Committee and is attached herewith as annexure I.

The KSPCB is regularly monitoring the activities of the industry to ensure the timely completion of these actions.



All that stated above are true to the best of my knowledge and belief.

Dated this the 5th day of February 2025.



Vinaya

Chief Environmental Engineer

KSPCB

VINAYA. K.S
CHIEF ENVIRONMENTAL ENGINEER

Solemnly affirmed and signed by the deponent who is known to me on this
the 5th day of February 2025.

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
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Dated this the 5th day of February 2025

Rema Smrithi. V.K, Advocate

ADDITIONAL STANDING COUNSEL FOR THE THIRD RESPONDENT



The Kerala Minerals and Metals Ltd.

(A Govt. of Kerala Undertaking)

(An ISO 9001, ISO 14001 & ISO 45001 Certified Company)

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ISO 9001/ISO 14001
ISO 45001
BUREAU VERITAS
Certification



CIN-U14109KL1972SGC002399

TP/ENV/NGT/01
27.01.2025

**The Chief Environmental Engineer
The Kerala State Pollution Control Board
Pattom
Thiruvananthapuram**

Dear Sir/Madam,

Sub: Hon'ble NGT cases- KMML compliance report on Execution Application No. 7/2023 in Original Application No:290/2013 filed by Sri. Suresh Kumar in Hon'ble NGT (SZ), Chennai, Original Application No. 74/2023 (Earlier OA 502/2022 (PB)) filed by Sri. Padmakumar in Hon'ble NGT (SZ), Chennai and Original Application No. 94/2024 (Earlier OA 776 of 2023(PB) LP) filed by Sri. Shefeek S. in Hon'ble NGT (SZ), Chennai.

Ref: (1) Execution Application No. 7/2023 in Original Application No:290/2013 filed by Sri. Suresh Kumar in Hon'ble NGT (SZ), Chennai.
(2) Original Application No. 74/2023 (Earlier OA 502/2022 (PB)) filed by Sri. Padmakumar in Hon'ble NGT (SZ), Chennai.
(3) Original Application No. 94/2024 (Earlier OA 776 of 2023(PB) LP) filed by Sri. Shefeek S. in Hon'ble NGT (SZ), Chennai.

As discussed during the recent site visit of KSPCB to KMML and Vide ref (1, 2 & 3), we hereby submit the action taken report & status covering short term & long-term measures, directions/ findings suggested in the Hon'ble NGT verdict, Joint Committee Recommendation, etc. and attached as Annexure.

Submitted for your kind information.

**Thanking You,
Yours faithfully,
For The Kerala Minerals and Metals Limited**

HOD (ENV) & AGM (E/I)

Cc: (1) The Senior Environmental Engineer - 1
Kerala State Pollution Control Board
Pattom, Thiruvananthapuram - 695004.

(2) The Environmental Engineer
Kerala State Pollution Control Board
District Office, Ushas Building, Big Bazar,
Kollam - 691001.

ANNEXURE

STATUS & ACTION TAKEN REPORT ON SHORT TERM AND LONG-TERM MEASURES

Sl No.	Item	Brief Status/History	Target	Remarks
1. a.	<u>Long Term Measures</u> <u>Acid Regeneration Plant (ARP) technology modification to generate saleable iron oxide.</u>	<ul style="list-style-type: none">• KMML floated tender in July - 19 & it was retendered due to single bid.• KMML invited tender in September 2019 and only one party quoted.viz. M/s INDROX Global Pvt.Ltd. NewDelhi.• After evaluation of the proposal, the file was put up to 243rd Board Meeting of the company held on 21.05.2020, for approval.• As approved by the Board, the file was put up to Government on 01.06.2020, to get final sanction to place order.• As per the direction given by Government of Kerala retendering done in June 2021.• Global retender was invited on 10.06.2021. The bidders were M/s. Indrox Global Pvt. Ltd and M/s. Samrox.• The offer submitted was evaluated and noted that the only acceptable offer is from M/s. Indrox Global Pvt. Ltd and approved in the 250th Board Meeting of the Company held on 15.01.2022. The file was submitted for final Government approval.• Subsequently, a meeting was convened under the chairmanship of Hon'ble Minister for Industries, Law & Coir on 09.06.2022 and in the meeting, it was decided to work out the cost reasonableness & submit report to Government of Kerala.• Accordingly, FEDO, Kochi had done the Cost analysis study, and the report got submitted to Government for approval to place order.	Target completion date: 31.05.2026	Work in progress.

		<ul style="list-style-type: none"> • <u>Government accorded its approval for the project on 26.05.2024.</u> • <u>LOI has been placed on the party dated. 04.06.2024.</u> • <u>Work order was issued on 18.09.2024 and the final work order got accepted on 15.01.2025.</u> • <u>Work under progress and now in basic Engineering/ drawing evaluation/approval stage.</u> 		
II	<u>Short Term Measures</u>			
a	<u>Construction of garland drain around the IOP/ ETP ponds</u>	<ul style="list-style-type: none"> • Completed garland drain construction around new ETP. • Garland drain construction around old ETP/ IOP Few stretch work in capped area of the pond is in progress. • <u>Garland drain construction work in progress around new IOP.</u> 	Around new IOP the work will be completed by 30.04.2025.	
b	<u>Remediation of affected land near KMML premises.</u>	<ul style="list-style-type: none"> • Reengaged M/s FEDO, Kochi for Project Management Consultancy to do the test patch trial in the allegedly contaminated land in KMML premises. • Three parties quoted for the E-tender & work order issued to M/s P T Jayapal. • Execution of the work started by the first week of April 2024 and installation completed. • First set of remediation trial runs with lime solution done at site under the supervision of PMC M/s. FEDO, Kochi. • Status of the work & procedure following got informed to KSPCB. • M/s FEDO, Kochi (PMC), submitted a test patch trial report on 12.11.2024. In the report, they summarized that "The remediation method did not improve the pH of 	To be explored in detail based on the trial already done.	

		<p>ground water. As the pH of water did not improve, it can be deduced that the soil pH also did not improve. Hence the proposed methodology of land remediation is not to be applied extensively without further study.</p> <ul style="list-style-type: none"> • To adopt remediation activities using specific technologies from the global front and as a part of further study on the way forward action to remediate the land, KMML has invited a global expression of interest (EOI) to identify suitable & competent bidders who can support their latest technology in the field. • The last date for submission of EOI was 17.01.2025. But no quotes from parties received. • <u>So, action taken to get a concurrence from IIT, Madras, to take up this job on test patch trial basis, awaiting their response.</u> 		
c	<p><u>Solid Waste Management (In-situ/ ex-situ storage)</u></p> <p>i. Geotube as a trial implementation.</p>	<ul style="list-style-type: none"> • Tendering done for Geotube iron oxide containment from new elevated iron oxide pond on trial basis. • The new technology of Geotubes involves dewatering and storage of iron oxide using Geotubes from the elevated new iron oxide pond. • Evaluation of the offers received was completed. Awaiting approval/authorization from CPCB/KSPCB for the trial. • CPCB reported to Hon'ble NGT court during the hearing dated 20.12.24, to submit application online for the approvals. • It is to be noted that we are going to place order for the value addition of stockpiled iron oxide in the storage ponds. This project is expected to be implemented in another 18 months of time and which would make it happen to consume the stockpiled masses of 	<p>Plant setup will take 18 months from the date of placement of order for the value addition of stockpiled iron oxide in ponds.</p>	<p>By considering placement of order for plant set up to do value addition, Geotube proposal can be considered as a secondary option only.</p>

		sludge stored and the mass will be utilized as value added product.		
	<p>ii. Disposal of Iron oxide/ ETP sludge</p> <p><u>Iron oxide residue sales</u></p>	<ul style="list-style-type: none"> • KMML invited E- tender for the sales of iron oxide residue on 19.12.2019. Sales order was issued to M/s Miracle Sands and Chemicals, Tuticorin for 10000 MT on 09.06.2020. • The matter has been taken up by the party for concurrence from CPCB. Awaiting authorization from CPCB for trial production (value added product) by M/s Miracle Sands and Chemicals, at their location. • CPCB reported to Hon'ble NGT court during the hearing dated 20.12.24, to submit application online for the approvals. • <u>Miracle Sands and Chemicals submitted their application online to CPCB in Jan-25.</u> • In order to select potential agencies to carry out the value addition of stockpiled iron oxide & ETP sludge on a DBFOO basis with suitable technology, KMML published a global Expression of Interest (EOI). Offers received from the parties and CSIR-NIIST, Thiruvananthapuram was appointed as consultant to carry out the technical evaluation of the proposal. • E- Tender was floated subsequently and finalized the proposal. • M/s Tetrabic India Private Limited, Hyderabad, is the party identified. GO to engage in land lease agreement and sludge off take agreement with M/s Tetrabic India was received on 09.11.2024. Land lease agreement is in preparation. Sludge off take draft agreement also being finalized and on 27.01.2025 draft was forwarded for the concurrence from M/s Tetrabic India Private Limited, Hyderabad. 	<p>Tentatively 6-8 months from CPCB approval</p> <p>Plant setup will take 18 months from the date of placement of order for the value addition of stockpiled iron oxide in ponds.</p>	<p>Awaiting authorization from CPCB, New Delhi</p>

<p>iii. <u>ETP sludge sales</u></p>	<ul style="list-style-type: none"> • After e-tendering, Sales order was issued to M/s Miracle Sands and Chemicals, Tuticorin for 50000 MT of ETP sludge. • M/s Miracle Sands and Chemicals have completed the shifting of approx. 28000 MT of ETP sludge as on 27.01.2025. • KMML invited another open e tender for sale of ETP sludge stored in KMML for a quantity of 20000 MT on 15.01.2025 (Qty for FY:2025-26). 	<p>Work in progress</p>	<p>Ongoing activity.</p>
<p>iv. Value addition of by products</p>	<ul style="list-style-type: none"> • In order to select potential agencies to carry out the value addition of stockpiled iron oxide & ETP sludge on a DBFOO basis with suitable technology, KMML published a global Expression of Interest (EOI). Offers received from the parties and CSIR-NIIST, Thiruvananthapuram was appointed as consultant to carry out the technical evaluation of the proposal. • E- Tender was floated subsequently and finalized the proposal. • M/s Tetrabic India Private Limited, Hyderabad, is the party identified. GO to engage in land lease agreement and sludge off take agreement with M/s Tetrabic India was received on 09.11.2024. Land lease agreement is in preparation. Sludge off take draft agreement also being finalized and on 27.01.2025 draft was forwarded for the concurrence from M/s Tetrabic India Private Limited, Hyderabad. 	<p>Plant setup will take 18 months from the date of placement of order for the value addition of stockpiled ETP in ponds.</p>	
<p>v. In house value addition of iron oxide</p>	<ul style="list-style-type: none"> ▪ KMML has developed an in-house technique for value addition of iron oxide by converting it to Iron Sinters (Sponge iron). ▪ Earlier two sets of in-house trials were taken and tested at end user for further process refining. ▪ Third trial with modified process methodology got done. The product was tested at M/s. 		

		<p>Peekay Steel. Based on their feedback another set of trial for a 50 MT quantity is being planned.</p> <ul style="list-style-type: none"> ▪ The results to be achieved for further fine tuning if required else technology documentation is the next phase. <ul style="list-style-type: none"> ▪ Technology freezing/DPR Preparation - 6 months ▪ Statutory Clearance - 6 months ▪ Tendering activities - 6 months ▪ Plant installation- 18 months ▪ Plant Trial run - 6 months • Intimation letter already forwarded to KSPCB vide letter (TP/TS/ENV dt. 01.02.2024) for iron oxide brick manufacturing in KMML. 	42 months from the placement of order.	
	vi. Iron oxide brick making plant	<ul style="list-style-type: none"> • As part of NH-66 widening work, about 8 lakhs quantity of bricks are required for KMML boundary wall construction. • E-tender invited (2023_KMML_586898_1 dt. 12.07.2023), for the set up of Iron Oxide brick manufacturing as done in the earlier days of KMML. • Work order dt. 26.12.2023 was issued to M/s C Ashokan to produce 8,00,000 nos of iron oxide brick for the in-home use of KMML. • The plant building construction completed & Equipments installed. • Produced approx. 3.25 lakhs bricks, till 27.01.2025. 	6 months.	Manufacturing in progress.

Disposal of Online generated Iron oxide to CTSDF to Kochi

1. It is also decided that the iron oxide which is further generated from the acid regeneration plant would get disposed of to CTSDF, Kochi (M/s. Kerala Enviro infrastructure Limited).
2. An agreement dated 02.08.2024 has been entered between KMML and KEIL for the disposal of iron Oxide for a period of two years which are going to generate from ARP.
3. Till 26.01.2025, a total quantity of 10192.73 MT of Iron oxide sludge has been transferred in the special vehicle provided by M/s KEIL.

Status of action taken and implementation of the recommendations of Joint committee

	Findings of the Joint committee	Status, Target and remarks
1	The remedial measures both short term and long term already proposed by M/s KMML shall be implemented within the committed time limit.	Time lined status of short term and long-term measures mentioned items covered in the previous pages.
2	The existing effluent treatment system shall be upgraded to ensure compliance to the effluent discharge norms prescribed under the consent conditions – within one year	<p><u>New Tertiary Tank in U 200</u> - Addition to improve the existing effluent treatment system.</p> <p><u>Civil work</u></p> <ul style="list-style-type: none"> ▪ Foundation work completed <p><u>Mechanical work</u></p> <ul style="list-style-type: none"> ▪ Tank fabrication, erection and rubber lining work completed. ▪ Purchase order issued for agitator and gear box. Agitator gear box expected on first week of February 2025. ▪ Expected time of completion – February 2025. <p><u>ETP revamping/ Modernization</u></p> <ul style="list-style-type: none"> ▪ Work order issued on M/s SBA Enviro system, Delhi for DPR preparation. ▪ The final DPR submitted by the party for the construction of 6 MLD Effluent Treatment plant got submitted to KSPCB on 26.06.2024 for Technical concurrence. ▪ Forwarded letter to KSPCB dt. 05.12.2024 seeking permission for conducting a technical presentation through video conference on the technical aspects of 6 MLD Effluent

		<p>Treatment Plant in KMML.</p> <ul style="list-style-type: none"> ▪ Tentative time of Completion- December 2026.
3	<p>Integrated consent to operate issued to KMML by KSPCB shall be amended suitably with the necessary effluent discharge norms and hazardous waste management according to The Environment (Protection) Rules 1986 within a month.</p>	<p>Complied.</p> <ul style="list-style-type: none"> ▪ A pH and flow meter already installed locally at the outlet of discharge pump and pH is displayed in the ETP MCC room. ▪ The pH details are daily recorded by KMML.
4	<p>Place proper sign boards should be placed at all suitable places to avoid human/ animal contact with the polluted stagnant water bodies in the vicinity of the human habitation - within a month.</p>	<p>Sign board installed at site on 28.10.2023.</p> <p>Complied</p>
5	<p>Permanent capping of existing storage ponds or temporary capping using LDPE liners and also suitable chemical dosage to neutralize runoff before next monsoon or by May 2023.</p>	<p>Complied.</p> <ul style="list-style-type: none"> ▪ Almost fifty percentage of the old ponds area are capped. ▪ Temporary capping of old iron oxide pond II for an area of 6300 M2 using LDPE sheet completed on 03.02.2024. ▪ Temporary capping of settling pond 1 for an area of 6200 m2 using LDPE sheet completed on 21.05.2024. ▪ Tender floated for capping of settling pond 1 for an area of 6776 M2 using LDPE sheet on 15.01.2025. ▪ Action taken for the procurement of 20,000 M² of liner film.
6	<p>Not to discharge untreated effluent into any drain or natural drain. Construct Garland drain all along the industry premises within 9 months</p>	<p>Complied</p> <p><u>Storm water cleaning</u></p> <ul style="list-style-type: none"> ▪ Cleaning of the storm water drains

	and along the periphery of old iron oxide ponds by March 2023. Also the runoff should be neutralized if required and ensured if required suitable and proper treatment before its discharge.	<p>being done periodically.</p> <ul style="list-style-type: none"> ▪ Work order issued to M/s Friends Motors for storm water drain cleaning on 08.01.2025. Work completed. <p><u>Storm Water Drain Neutralization</u></p> <ul style="list-style-type: none"> ▪ The storm water drain is neutralizing continuously using lime solution at a point near the railway gate exit.
7	Among the process changes, feasibility of inclusion of waste water option for recovery of acid and neutralization of iron oxide sludge using suitable chemicals prior to the disposal of iron oxide sludge into storage tank within 3 months.	<p>Complied.</p> <ul style="list-style-type: none"> ▪ KMML already have the feasibility of recycling wash water and reusing in plant itself to the possible extent. ▪ The iron oxide slurry is neutralized at source before pumping to the new pond. The iron oxide is deposited in the new IOP and clear liquor is recycled to the slurry preparation tank.
8	Lime treatment in existing dump yards and surface water contaminated areas- ongoing.	<p>Complied.</p> <ul style="list-style-type: none"> ▪ Lime treatment in the existing dump yards as temporary measures being done continuously. ▪ In addition, lime spreading have done prior to capping of old ponds.
9	Regular water supply and periodical health camp- ongoing.	<p>Complied.</p> <ul style="list-style-type: none"> ▪ KMML is continuously supplying about 7 to 8 lakhs liters per day of drinking water of potable quality to the surrounding local residences. ▪ Potable water is getting supplied through pipeline around 65 kms for local residence and also through tankers. ▪ Conducting regular medical camps once in a month and providing

		medicines, medical aid to ailing patients/ palliative care.
10	As the iron oxide pond capacity exhausted, take immediate action for temporary storage and safe disposal with immediate effect.	<p>Complied.</p> <ul style="list-style-type: none"> ▪ As the storage space in Iron oxide pond has exhausted, temporary storage area for safe disposal of iron oxide is done in accordance with the Hazardous and Other Waste (Management and transboundary Movement) Rules. ▪ <u>Iron Oxide Brick Making</u> Work order dated. 26.12.23 was issued to M/s C Ashokan for iron oxide brick making plant and for making 8 lakh no.s of bricks for in-home use of KMML. Produced approx 3.25 lakhs bricks. ▪ The value addition of iron oxide with the support of M/s Tetrabic Private Limited, iron oxide brick production, production of iron oxide sinters, etc. will utilize a portion of iron oxide generated/store in the premises in secured ponds.
11	Utilization of iron oxide sludge for recovery of iron within 3 months and also explore the option of red oxide from iron oxide sludge within 3 months.	<p><u>In-house Value addition of Iron oxide</u></p> <ul style="list-style-type: none"> • Since there is no readily available technology for producing iron sinter from KMML iron oxide sludge, KMML has developed an in-house technique for value addition of iron oxide by converting it to iron sinters (sponge iron). • However, KMML have to further develop and fine tune a technology for iron sinter commercialization. Trials are ongoing.

		Time of completion - 42 months.
12	Detailed assessment of affected areas and implement remedial measures in contaminated site as well as ground water, and feasibility of acquisition of affected land	<ul style="list-style-type: none"> ▪ Based on CSIR – NEERI, Nagpur study report, KMML started remediation of contaminated sites on trial basis. ▪ Feasibility of acquisition of attested land is under consideration of Government.
13	<p>M/s. KMML also ensure compliance to CPCB directions issued under section 5 of the environment sound management of Hazardous and Other waste (management and Trans boundary Movements) Rules, 2016 as amended.</p> <p>KMML submit Action taken report to CPCB directions issued under section 5 of the environment sound management of Hazardous and Other waste (management and Trans boundary Movements) Rules, 2016 as amended.</p>	<p>Complied.</p> <ul style="list-style-type: none"> ▪ Action taken report is being submitted to CPCB Chairman once in two months. ▪ Latest Bi-monthly report submitted on 19.11.2024.
14	All tube wells located within the industry premises shall be connected with tamper proof flow meter to record total water consumption of natural resources within 3 months and submit report to KSPCB on quarterly basis.	<p>Complied.</p> <ul style="list-style-type: none"> ▪ Monthly water consumption report is being submitted to KSPCB. ▪ Quarterly report of total water consumption submitted to KSPCB on 05.12.2024.
15	Install OCEMS (Online continuous effluent monitoring system) and a flow meter at effluent outlet discharge into sea to assess compliance to the effluent discharge norms prescribed by KSPCB and displayed at the entrance of the industry for the information to Public within 5 months.	<p>Complied.</p> <p>A pH and flow meter already installed locally at the outlet of discharge pump and pH is displayed in the ETP MCC room. The pH details are daily recorded by water treatment plant of KMML.</p> <p>OCEMS (Online continuous effluent monitoring system) installation completed</p>

		<p>on 24.10.2024.</p> <p>KSPCB online portal registration process requested for implementation Letter No: TP/ENV/PCB forwarded to KSPCB on 06.12.2024.</p> <p>KSPCB central server registration completed on 13.12.2024.</p>
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Other Activities

As part of Corporate Social Responsibility (CSR), the company is also extending the following supports to the general public.

- Conducting regular medical camps.
- Providing medical aid to ailing patients/ palliative care.
- Support to nearby Panchayaths for providing street lights, drains, stray dog catching etc.
- Covid Second Line Treatment Centre (CSLTC) – We have setup a CSLTC at GHSS, Sankaramangalam School. This facility was a 850 Nos bedded one with oxygen support from KMML and the same was maintained for more than a year time. Rs. 4.5 Crores expended and as part of COVID support.
- Supplied liquid medical oxygen at reduced rate for pandemic treatment.
- Providing support for the infrastructure upliftment of nearby schools.
- Tailing sand supply to nearby surroundings for low lying land filling.
- Supporting welfare activities of mining area.
- Dividend payment to Government of Kerala.
- We are continuously supplying about 7 to 8 lakhs liters per day of drinking water of potable quality to the surrounding local residences.
- Potable water is supplied through pipe line around 65 kms for local residence and also in tankers.
- KMML is paying 50% of water tax of the Jalanidhi scheme for local residences.



The Kerala Minerals and Metals Ltd.

(A Govt. of Kerala Undertaking)

(An ISO 9001, ISO 14001 & ISO 45001 Certified Company)

SANKARAMANGALAM, CHAVARA-691 583

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CIN-U14109KL1972SGC002399

TP/ENV/NGT/01

30.01.2025

**The Chief Environmental Engineer
The Kerala State Pollution Control Board
Pattom, Thiruvananthapuram**

Dear Sir/Madam,

Sub: Hon'ble NGT cases- KMML compliance report on Execution Application No. 7/2023 in Original Application No:290/2013 filed by Sri. Suresh Kumar in Hon'ble NGT (SZ), Chennai, Original Application No. 74/2023 (Earlier OA 502/2022 (PB)) filed by Sri. Padmakumar in Hon'ble NGT (SZ), Chennai and Original Application No. 94/2024 (Earlier OA 776 of 2023(PB) LP) filed by Sri. Shefeek S. in Hon'ble NGT (SZ), Chennai.

Ref:(1) Execution Application No. 7/2023 in Original Application No:290/2013 filed by Sri.

Suresh Kumar in Hon'ble NGT (SZ), Chennai.

(2) Original Application No. 74/2023 (Earlier OA 502/2022 (PB)) filed by Sri. Padmakumar in Hon'ble NGT (SZ), Chennai.

(3) Original Application No. 94/2024 (Earlier OA 776 of 2023(PB) LP) filed by Sri. Shefeek S. in Hon'ble NGT (SZ), Chennai.

(4) Letter No: TP/ENV/NGT/01 dated 27.01.2025 forwarded KSPCB.

Vide ref (4), We have already submitted the action taken report & status covering short term & long-term measures, directions/ findings suggested in the Hon'ble NGT verdict, Joint Committee recommendations with respect to ref (1.2 & 3) to KSPCB on 27.01.2025.

Now we are furnishing additional details pertaining to public water supply from KMML corresponding to OA No: 94/2024 viz. compliant raised by Sri. Shefeek S, local resident. It may be noted that KMML has been providing drinking water through pipelines and tank mounted vehicles to local community including Sri. Shefeek. S, who is a resident of the neighboring Kalari Ward.

At present there is no complaint regarding drinking water supply to Sri. Shefeek.S. The complaint raised by Sri. Shefeek. S regarding supplying of clean water is solved by KMML. The details of public water supply from KMML is attached as Annexure-I,II,III & IV, for your kind perusal

**Thanking You,
Yours faithfully,
For The Kerala Minerals and Metals Limited**

HOD (ENV) & AGM (E/I)

Cc: (1) The Senior Environmental Engineer - 1
Kerala State Pollution Control Board
Pattom, Thiruvananthapuram - 695004.

(2) The Environmental Engineer
Kerala State Pollution Control Board
District Office, Ushas Building, Big Bazar,
Kollam - 691001.

DETAILS OF DRINKING WATER PROVIDED BY SEVEN NEIGHBOURING
WARDS

1. No of wards covered - 7, Chitoor, Mekkad, Ponmana, Panmana, Kalari, Kolam, Porukara
2. No of Households covered - 5578
3. No of residents covered and time allotted to each ward - Around 5578, water provide viz- Company pipe line Jalanidhi pipe line Tank mounted Lorry & Tube well constructed by KMML
4. Details about length of pipe laid quantity of water supplied through pipeline - Around 65 Km company pipe line Jalanidhi pipe line laid at Panmana Panchayath
5. Quantity of water supplied through Tanker lorry and its details - 1,60,000 Litter to 1,81,000 Litter / day

KERALA MINERALS AND METALS LIMITED

Sankaramangalam - Chavara

Potable Drinking Water Supply Scheme

The seven neighbouring wards of the Company viz Kalari, Kolam, Mekkad, Chittoor, Ponmana, Panmana and Porukara are provided with potable drinking water after purification from the Company's water treatment plant. This is done through the laid pipe lines which is about 65km to ensure drinking water to all the household in these wards. Around 8 lakhs ltr of water is supplied through this pipe line net work. Over and above this, one lakh fifty thousand ltr of water is provided in tank mounted lorries each day though out the year and during summer additional quantity of more than fifty thousand liters is being provided.

In addition to this required quantity of water is provided for marriage, house warming, religious functions based on request of the ward members.

Tube wells

The Company has constructed tube wells and the output of these wells is connected to the laid pipe line of the water supply scheme that is maintained by the Jananidhi. Wells are constructed for Mekkad, Chittoor, Panmana, Ponmana, Porukara, Kalari, Kolam. One tube well was constructed for two wards of Vadakkumthala. The cost of constructions and connecting to the Jananidhi line was borne by the Company. At the time of discussion for construction of tube well, it was agreed that current charges wages of the well operators, repairs and maintenance would be borne by Jananidhi. For ensuring smooth supply of water, the cost of repairs of these wells and pipe line network are meet by the Company.

The wells constructed at Porukkara and Vaduthala are not functioning. The company has informed the Panchayath that new wells will be constructed if suitable alternative land is provided. They are yet to identify land for the purpose. On identification of land Company would construct wells in these areas.

Jalanidhi scheme

The Jananidhi scheme in the year 2009-2010 was aimed to provide drinking water to all the households of Chavara and Panmana Panchayath from the Sasthamcotta fresh water lake.

For the implementation of the scheme, then Hon'ble minister for water resource, Officials and elected members both the Panchayath, political leaders requested the Company management for providing financial assistance. Based on the request the Board of Directors approved to provide 1.17 Cores of rupees for implementation of the scheme (73.48 Lakhs for Panmana Panchayath and 44.32 Lakhs for Chavara Panchayath). On implementation of the scheme the water provided by the Company to the neighbouring area was to be discontinued.

The water from Sasthamcotta Lake was not sufficient hence the Company after providing the requested amount is still providing water from the water treatment plant to these areas both through laid pipe line and tank mounted lorries and yield from the tube wells constructed. Over and above thus 50% of water cess of the seven wards is borne by the Company.

Committee of redressal of complaint related to drinking water.

A committee has been constituted for redressal of complaint and for monitoring smooth supply of drinking water to the seven neighbouring wards of the Company. The water committee is constituted with Manager (Welfare) Manager (Utility) Manager (Civil), Security Officer, Public Relation Officer and Community Liaison Officer.

The Committee convene to evaluate each complaints related to disruption of water supply and action are taken on war footing to solve and ensure smooth uninterrupted water supply.

The telephone numbers of the Public Relation Officer and Community Liaison officer are provided to the ward members. They are available 24 hours and attend to complaints and solve the issues of water supply.

Enclosed herewith the details of amount expended by the Company for ensuring water supply to the neighbouring wards of the Company.

As on expenditure

1.	Jalanidhi Project	-	Rs. 1,17,00,000/-
2.	Tube well Construction	-	Rs. 1,71,27,212/- (6 Nos)
3.	Water charge paid to SLEC	-	Rs. 1,70,86,600/- (from 2011)
4.	Tank mounted lorry Hire charge	-	Rs. 3,80,44,251/- (from 2012)
5.	Tube well maintenance charge	-	Rs. 9,59,166/-

			Rs.8,49,17,229/-
			=====

***Expenditure on water treatment**

plant for supply of drinking water per Year - 72 Lacs
(800m³ x 25 x30 x12)

*Apart from this, the company has bear the cost of laying the pipe line within a ^{length}radius of 65 km and their day to day maintenance.

Details of Drinking water supply to the neighboring wards of the company through tank mounted vehicle

Potable drinking water is distributed to the seven neighbouring wards of the Company viz Kalari, Kolam, Mekkad, Chittoor, Ponmana, Panmana and Porukara after purification from the Company's water treatment plant for the past several years. Drinking water is supplied on tank mounted vehicles based on the work order issued by the Company. Mr. Abdul Shukkoor is the contractor entrusted with the work for the year 2024.

Company's monthly expenses for drinking water supply through tank mounted vehicles during the year 2024

January	- Rs. 3,97,319/-
February	- Rs. 4,15,417/-
March	- Rs. 4,85,849/-
April	- Rs. 4,95,601/-
May	- Rs. 4,90,778/-
June	- Rs. 4,47,777/-
July	- Rs. 4,63,327/-
August	- Rs. 4,98,149/-
September	- Rs. 4,71,456/-
October	- Rs. 4,69,070/-
November	- Rs. 5,35,806/-
December	- Rs. 5,54,979/-

Total expense incurred during the year 2024 - Rs. 57,25,528/-

EXHIBIT - 4

DATE	PIPE LINE (M3)	WATER TANKER (M3)	DATE	PIPE LINE (M3)	WATER TANKER (M3)	DATE	PIPE LINE (M3)	WATER TANKER (M3)	DATE	PIPE LINE (M3)	WATER TANKER (M3)	DATE	PIPE LINE (M3)	WATER TANKER (M3)	DATE	PIPE LINE (M3)	WATER TANKER (M3)
01-Jul	774	159	01-Aug	729	151	01-Sep	779	187	01-Oct	746	192	01-Nov	751	168	01-Dec	774	203
02-Jul	696	95	02-Aug	779	174	02-Sep	749	199	02-Oct	774	195	02-Nov	736	144	02-Dec	889	193
03-Jul	755	166	03-Aug	743	172	03-Sep	778	194	03-Oct	769	199	03-Nov	745	160	03-Dec	953	209
04-Jul	763	163	04-Aug	724	190	04-Sep	745	139	04-Oct	734	167	04-Nov	774	175	04-Dec	758	198
05-Jul	772	175	05-Aug	732	163	05-Sep	814	194	05-Oct	686	87	05-Nov	724	178	05-Dec	836	208
06-Jul	771	180	06-Aug	755	181	06-Sep	778	185	06-Oct	739	157	06-Nov	750	175	06-Dec	761	164
07-Jul	757	160	07-Aug	739	190	07-Sep	806	186	07-Oct	730	168	07-Nov	733	178	07-Dec	899	191
08-Jul	791	162	08-Aug	760	189	08-Sep	778	165	08-Oct	725	118	08-Nov	759	181	08-Dec	777	184
09-Jul	776	178	09-Aug	749	191	09-Sep	773	192	09-Oct	731	110	09-Nov	723	190	09-Dec	782	204
10-Jul	762	148	10-Aug	756	188	10-Sep	764	190	10-Oct	716	117	10-Nov	727	181	10-Dec	924	198
11-Jul	754	125	11-Aug	770	183	11-Sep	763	185	11-Oct	782	157	11-Nov	700	140	11-Dec	735	191
12-Jul	751	164	12-Aug	790	180	12-Sep	742	185	12-Oct	744	189	12-Nov	793	163	12-Dec	756	184
13-Jul	749	168	13-Aug	777	190	13-Sep	761	179	13-Oct	788	177	13-Nov	739	175	13-Dec	736	144
14-Jul	741	180	14-Aug	753	167	14-Sep	821	193	14-Oct	766	183	14-Nov	777	187	14-Dec	752	185
15-Jul	727	176	15-Aug	762	195	15-Sep	716	179	15-Oct	757	171	15-Nov	744	189	15-Dec	727	147
16-Jul	746	190	16-Aug	734	169	16-Sep	756	169	16-Oct	767	170	16-Nov	745	218	16-Dec	776	194
17-Jul	710	171	17-Aug	746	204	17-Sep	726	182	17-Oct	740	144	17-Nov	768	221	17-Dec	760	192
18-Jul	716	139	18-Aug	696	201	18-Sep	815	175	18-Oct	749	144	18-Nov	753	199	18-Dec	766	187
19-Jul	725	143	19-Aug	804	190	19-Sep	784	187	19-Oct	809	191	19-Nov	777	214	19-Dec	776	198
20-Jul	782	189	20-Aug	735	163	20-Sep	781	183	20-Oct	720	176	20-Nov	832	164	20-Dec	793	179
21-Jul	756	156	21-Aug	730	161	21-Sep	753	182	21-Oct	776	175	21-Nov	786	192	21-Dec	770	178
22-Jul	748	190	22-Aug	767	193	22-Sep	731	152	22-Oct	784	187	22-Nov	805	186	22-Dec	776	196
23-Jul	757	202	23-Aug	785	177	23-Sep	726	148	23-Oct	771	173	23-Nov	762	195	23-Dec	734	169
24-Jul	754	197	24-Aug	778	196	24-Sep	775	169	24-Oct	762	186	24-Nov	765	117	24-Dec	805	180
25-Jul	779	188	25-Aug	792	191	25-Sep	749	197	25-Oct	748	184	25-Nov	844	219	25-Dec	800	163
26-Jul	744	151	26-Aug	766	164	26-Sep	727	139	26-Oct	758	181	26-Nov	759	220	26-Dec	752	128
27-Jul	750	185	27-Aug	763	179	27-Sep	735	173	27-Oct	756	194	27-Nov	669	147	27-Dec	752	194
28-Jul	771	186	28-Aug	744	170	28-Sep	761	164	28-Oct	761	184	28-Nov	744	183	28-Dec	776	194
29-Jul	742	179	29-Aug	808	196	29-Sep	784	192	29-Oct	744	180	29-Nov	756	169	29-Dec	701	182
30-Jul	740	169	30-Aug	610	166	30-Sep	739	183	30-Oct	776	192	30-Nov	774	191	30-Dec	850	193
31-Jul	741	153	31-Aug	814	172				31-Oct	790	192				31-Dec	786	182
TOTAL (M3)	23300	5187		23390	5596		22909	5347		23398	5240		22735	5419		24432	5712
AVG.	751.61			754.52			763.63			754.77			757.97			788.13	

SIX MONTHS TOTAL (M3) 140168
 AVG. (M3) 761.78 (7,61,78,000)

ditgas
MAD SC
HAB LCC IF
29/01