

**BEFORE THE HONOURABLE NATIONAL GREEN TRIBUNAL  
SOUTH ZONE CHENNAI BENCH**

**Original Application No. 142/ 2013 , 290 /2013 & 453/2013(SZ)**

Sri. Joy Kaitharath .... Applicant

Versus

The Kerala Minerals & Metals Ltd , Kollam  
& Others .... Respondent(s)

**REPORT FILED BY THE ENVIRONMENTAL ENGINEER, KERALA  
STATE POLLUTION CONTROL BOARD, DISTRICT OFFICE, KOLLAM  
IN APPLICATION NO. 290 OF 2013 AS PER THE ORDER OF THE  
HON'BLE NGT DATED 15.02.2022**

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I, Simi P., aged 40 years, D/o. T.V. Baby residing at Anizham, Maithanam, Varkala P.O., Thiruvananthapuram - 695141, Environmental Engineer, Kerala State Pollution Control Board, District Office, Kollam, do solemnly affirm and state as follows:

1. I am conversant with the facts of the case.
2. The Kerala Minerals and Metals Ltd., Titanium Pigment Unit, Chavara is engaged in the production of Titanium Dioxide. In the late 80's and early 90's due to failure of the liner of the iron oxide ponds (pond 1 and pond 2) of the

industry, acid from sludge had leaked into soil causing pollution of the soil and ground water of the nearby area. The industry had constructed a new iron oxide pond (pond 3) in 2008 and the old ponds (pond 1 and pond 2) from which the leakage had occurred were abandoned thereafter. The Hon'ble NGT in its Judgment dated 31.08.2017 in O.A. No. 142/2013 and connected cases had directed the industry to prepare, both short term and long term measures for Environmental Management Plan regarding solid waste disposed by KMML, through competent and expert developers/contractors and to present the same to the Board for its approval and further direction etc. The long term measure proposed by KMML was process modification of the acid recovery plant. The short term measures proposed by the industry were construction of garland drain around the iron oxide and ETP ponds, remediation of affected land near KMML premises and in-situ/ ex-situ management of the iron oxide sludge.

3. The industry had submitted the proposal for process modification of the acid recovery plant for approval of the Government. Further, three numbers of DPRs prepared as directed by the Hon'ble NGT in order to implement the short term measures suggested by M/s. NEERI were submitted to the Board. The first DPR was for construction of garland drain around the iron oxide /ETP ponds, the second DPR was regarding remediation of affected land near KMML premises and third DPR was regarding in-situ/ex-situ storage of the iron oxide sludge. The DPRs were evaluated in the meeting conducted on 10.12.2018 in the chamber of the Board Chairman. The proposals for construction of garland drain and remediation of affected land were accepted by the Board. It was recommended to establish a pilot model for remediation of the contamination

area around KMML and to initiate further action after assuring the performance of that model. The third proposal for storage of iron oxide sludge was agreed in principle. The proposal had to be finalized after further detailed scrutiny. The minutes of the said meeting is produced herewith and marked as **Annexure R3(a)**.

4. The construction of garland drain is in progress around the ETP ponds. The industry had not yet commenced remediation of the affected land area near its premises. The industry had reported that the work order was issued to M/s. FEDO for consultancy work on 05.12.2019. Though M/s. FEDO submitted DPR and tendering was done on 25.02.2020, 24.06.2020 and 19.08.2020, no response was received. Due to non-receipt of offers, the industry had initiated action to carry out the work by themselves. The industry had proposed storage of iron oxide sludge in geo-tubes the approval of which is yet to be finalized by the Board as the details of the project such as its location, the extent of land required and the availability of the same were to be furnished by the industry. The said details were submitted only on 08.03.2022 and the same is being evaluated by the Board. Further, the industry had reported that though tenders were invited for the geo-tube project there had been no success till date. The proposal for acid recovery plant had not yet received sanction from the Government. As such the time required for implementation of the said projects is not specific. Meanwhile the iron oxide pond no.3 got filled up. The industry had informed that without an arrangement to store the iron oxide sludge generated as part of the production process, its further operation will be hindered. The industry was granted Consent to Establish for construction of a new iron oxide pond as per Consent no. PCB/HO/KLM/ICE-exp/02/2018 dated

03.10.2018. The copy of the same is produced herewith and marked as **Annexure R3 (b)**. The construction of the same is not yet started. The industry had informed that acid recovery plant and geotube project are preferable to the industry over the construction of the new iron oxide pond. The industry had proposed value addition of by-products (iron oxide/ ETP sludge). For the same the industry had identified M/s. Renuka Equipments Pvt. Ltd, Nagpur with the help of M/s.NEERI as the competent technology provider for the management of iron oxide stored in the old pond by converting the same into usable product. The industry had informed that global expression of interest was called for the project and bid was invited for technical evaluation of the proposal.

5. The industry had requested that they may be permitted to transfer a fraction of the sludge from iron oxide pond no.3 to iron oxide ponds 1 & 2 to avoid closing down of the industry due to filling up of the iron oxide pond no.3. The Board had permitted the same as a temporary arrangement subject to stringent control measures. The industry is currently transferring iron oxide sludge from pond 3 to ponds no 1 & 2 after neutralization. The sludge is transferred in trucks with leak proof lining. The Board is conducting periodic inspections to monitor the same. The construction of the garland drain is in progress. The industry had provided HDPE lining to the inside of ponds (1) & (2) to avoid the contamination by leachate and neutralized sludge was found transferred. Some spillage was noticed on the internal roads that had occurred while the sludge was being transported in the trucks from pond (3) to ponds (1) & (2). The industry officials had informed that the spillage is cleaned frequently and the

same is transferred to ponds (1) & (2). Board had instructed the industry to take utmost care and precautions while transferring the sludge. KMML is also supplying drinking water to the nearby residents.

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

Dated this the 20<sup>th</sup> day of April 2022

ENVIRONMENTAL ENGINEER  
<sup>3rd</sup> Respondent

Solemnly affirmed and signed by the deponent who is known to me on this the 20<sup>th</sup> day of April 2022



**MEETING CONDUCTED ON 10/12/2018 IN THE CHAMBER OF CHAIRMAN, KERALA STATE POLLUTION CONTROL BOARD, TO EVALUATE THE FINAL DPR SUBMITTED BY KMML, CHAVARA.**

The meeting started at 11.30 am. Meeting was presided by the Chairman, Member Secretary was also present. The following officers attended the meeting.

1. Sri. Raghavan. K (Managing Director, KMML)
2. Sri. Santhosh. P[(HOD (TD), KMML]
3. Sri. M. U. Vijayakumar [HOD (Material), KMML]
4. Sri. P. K. Manikuttan [HOD, Env, KMML]
5. Sri. Suraj. J. Fernandaz
6. Smt. Sreekala. S (Chief Environmental Engineer, Regional Office, Trivandrum)
7. Smt. Simi. P (Environmental Engineer, District Office, Kollam)
8. Smt. Ramya. G (Environmental Engineer -1, Head Office)
9. Smt. Saritha. R (Assistant Environmental Engineer, Head Office)
10. Smt. Sruthi (Assistant Engineer, Head Office, Thiruvananthapuram)

The Kerala Minerals and Metals Limited had prepared a detailed project report (DPR) and submitted the same before the Board for getting approval, as directed by Hon'ble NGT, in order to implement the short term and long term measures suggested by NEERI. DPR is prepared for the following projects.

- 1) Construction of Garland drain around the Iron Oxide/ ETP ponds.
- 2) Remediation of the affected lands near KMML premises.
- 3) Facilities for insitu/ exsitu storage of Iron Oxide.

For discussing on the above DPR, the meeting was convened. The Kerala Minerals and Metals Limited official Sri. Manikuttan has carried out a presentation on the salient points in the DPR, which are as follows:

1) CONSTRUCTION OF GARLAND DRAIN AROUND THE IRON OXIDE/ ETP PONDS.

Chairman asked the officials of the company to explain the merits of the above project. Sri. Manikuttan explained that seepage overflow from the old pond can be eliminated after construction of garland drain. Since the seepage will pass only through the garland drain, the contamination caused to the nearby water bodies and further ground water contamination can be completely eliminated.

Total project cost will be 5.7 crores excluding operation and maintenance cost. It will take 12 months to complete the work from the date of award of the work.

2) REMEDICATION OF AFFECTED LAND NEAR KMML PREMISES.

Remediation is proposed to be carried out in 515 acres of land in and around Kerala Minerals and Metals Limited. It is proposed to provide test patches with 6 extraction wells first. One such Remediation Unit, will take 23 years for the remediation. It is proposed to provide 10 Remediation Units, so that the remediation can be completed within 2-3 years. The test patch of one RU unit having size 75 x 50 m is proposed to be implemented inside KMML.

3) FACILITIES FOR INSITU/EXSITU STORAGE OF IRON OXIDE.

- Exsitu Method: In this method Solid state sludge transfer and Slurry state sludge transfer are proposed. After disposal of sludge in secure containment system with HDPE and clay liners, it is capped with 1.5mm thick HDPE liner, supportive clay layers, and vegetation soil cover. Here all the sludge quantities need to be transferred from old ponds to this new system and large area is required to accommodate high volume of sludge. Hence they informed that insitu method is more feasible for

Kerala Minerals and Metals Limited, which has only limited vacant land available.

- **In situ Secure Containment System:** In this method contaminant cells, are proposed to be excavated one by one, repaired by removing damaged old lining, relined, filled & then will be capped as per Central Pollution Control Board guidelines.

The unit authority informed that the proposed DPR can be submitted before the Government only after getting approval from the Board. After the presentation Chairman informed the following.

- 1) The proposal for construction of Garland drain is accepted and the unit can proceed with the proposal.
- 2) The proposal for remediation of contaminated area around Kerala Minerals and Metals Limited is also accepted. But, it is recommended to establish a pilot model. After assessing the performance of that model, further necessary action shall be initiated.
- 3) The 3<sup>rd</sup> proposal for storage of Iron Oxide is agreed in principle. But the proposal is to be finalized after further detailed scrutiny.

Meeting came to an end at 12.30 pm.

  
 CHAIRMAN

**FILE NO. :PCB/HO/KLM/ICO/08 /08**

**Date of issue :03/10/2018**



**KERALA STATE POLLUTION CONTROL BOARD**

**CONSENT TO ESTABLISH**

ISSUED UNDER

**Section 25 of Water (Prevention & Control of Pollution) Act, 1974  
Section 21 of the Air (Prevention & Control of Pollution) Act, 1981**

and

**Environment (Protection) Act, 1986**

**As per Application No. :6606600**

**Dated:11-06-2018**

**TO**

**M/s THE KERALA MINERALS AND METALS LIMITED**

**Sankaramangalam,**

**Chavara,kollam-691583.**

**Consent No. :PCB/HO/KLM/ICE-exp/02/2018**

**Valid Upto :11/06/2023**

## 1. GENERAL

1.1. This integrated consent is granted subject to the power of the Board to withdraw consent, review and make variation in or revoke all or any of the conditions as the Board deems fit.

1	<b>VALIDITY</b>	11/06/2023
2	Name and Address of the establishment	THE KERALA MINERALS AND METALS LIMITED SANKARAMANGALAM CHAVARA 691583
3	Communication	Telephone :0476-2686722 Fax :0476-2680101 E-mail:kmml@md3.vsnl.net.in
4	Occupier Details	ROY KURIAN K K, Managing Director, The Kerala Minerals and metals Limited, Sankaramangalam, Chavara, Kollam - 691583, Kerala
5	Local Body	Panmana
6	Survey Number	202/1
7	Village	Panmana
8	Taluk	KARUNAGAPALLY
9	District	Kollam
10	Capital Investment(Rs in Lakhs)	Rs.6250.00
11	Scale	Large
12	Category	RED
13	Annual fee(Rs)	Rs.2,18,000/-
	Total Fee remitted(Rs)	Rs.1097500/-
14	<b>RAW MATERIAL</b>	<b>PRODUCTS</b>
	Activity	Construction of ponds for the storage of Iron Oxide sludge and effluent treatment plant sludge from the existing unit.
15	Total Power Required (HP)	-

## 2. CONDITIONS AS PER

### The Water(Prevention and Control of Pollution)Act, 1974

- 2.1 In case of generation of trade effluent from the industry, effluent treatment system consisting of treatment units having adequate capacity established as per the proposal submitted along with the application shall be made functional before commissioning. Additional facilities required, if any, to achieve the standards laid down by the Board u/s 17(1) (g) of the Water Act shall also be made along with.

2.2 Water Consumption : -

2.3 Effluent Generation :

2.4 The characteristics of effluent after treatment shall confirm to the following tolerance limits:

Sl.NO.	Characteristics	Unit	Tolerance Limit	
			Sewage	Trade Effluent
1	NA	-	-	-

2.5 Mode of disposal of treated effluent : -

### 3. CONDITIONS AS PER

#### The Air(Prevention and Control of Pollution)Act, 1981

3.1 Adequate air pollution control measures shall be provided before commissioning of the industry. Additional facilities required, if any, to achieve the standards laid down by the Board shall also be made along with.

Stack No.	Sources of Emission	Emission Rate(Nm3/Hr)	Stack Height above		Control Equipment
			Ground Level	Roof Level	
1	NA	-	-	-	-

3.2 Emission characteristics shall not exceed the following:

Sl.No.	Parameter	Limiting Standards (mg/Nm3)
1	NA	-

### 4. CONDITIONS AS PER

#### The Environment (Protection) Act, 1986.

4.1 The construction activities shall be carried out strictly in compliance with the provisions of the Noise Pollution (Regulation and Control)Rules 2000.

4.2 Used lead acid batteries shall be disposed of as per the Batteries (Management and Handling) Rules, 2001

4.3 Hazardous waste generated, if any, shall be handled as per the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.

4.4 e-waste shall be disposed off safely as per the E-Waste (Management) Rules, 2016.

### 5. SPECIFIC CONDITIONS

5.1.Location of the structures shall be as shown in the drawing attached.No changes,other than in the conditions stipulated above shall be done without prior consent of the Board.

- 5.2. At the end of the validity period if the construction is in progress, the same shall be got renewed. If the construction is not started in the consent period, the applicant shall apply afresh for consent to establish.
- 5.3. The applicant shall comply with the instructions that the Board may issue from time to time regarding the prevention and control of air, water, land and sound pollution.
- 5.4. The date of commissioning shall be intimated, at least one month in advance, to the District Office of the Board.
- 5.5. Construction material should be stored only within earmarked area and road side storage of construction material shall be prohibited.
- 5.6. No uncovered vehicles carrying construction material and waste shall be permitted.
- 5.7. The construction debris mud discharges etc from the construction site shall be disposed safely as per Construction and Demolition Waste Management Rules, 2016.
- 5.8. Adequate liner system at the base and sides of the pond shall be provided so as to prevent the mitigation of leachate to the surrounding soil.
- 5.9. Surface water drainage system which collects and removes all surface run-off from the site shall be provided.
- 5.10. Leachate drainage, collection and removal facility shall be provided.

**K SAJEEVAN** Digitally signed by K SAJEEVAN  
Date: 2018.10.11 17:02:34 +05'30'

DATE :03/10/2018

SIGNATURE & SEAL OF ISSUING AUTHORITY  
CHAIRMAN



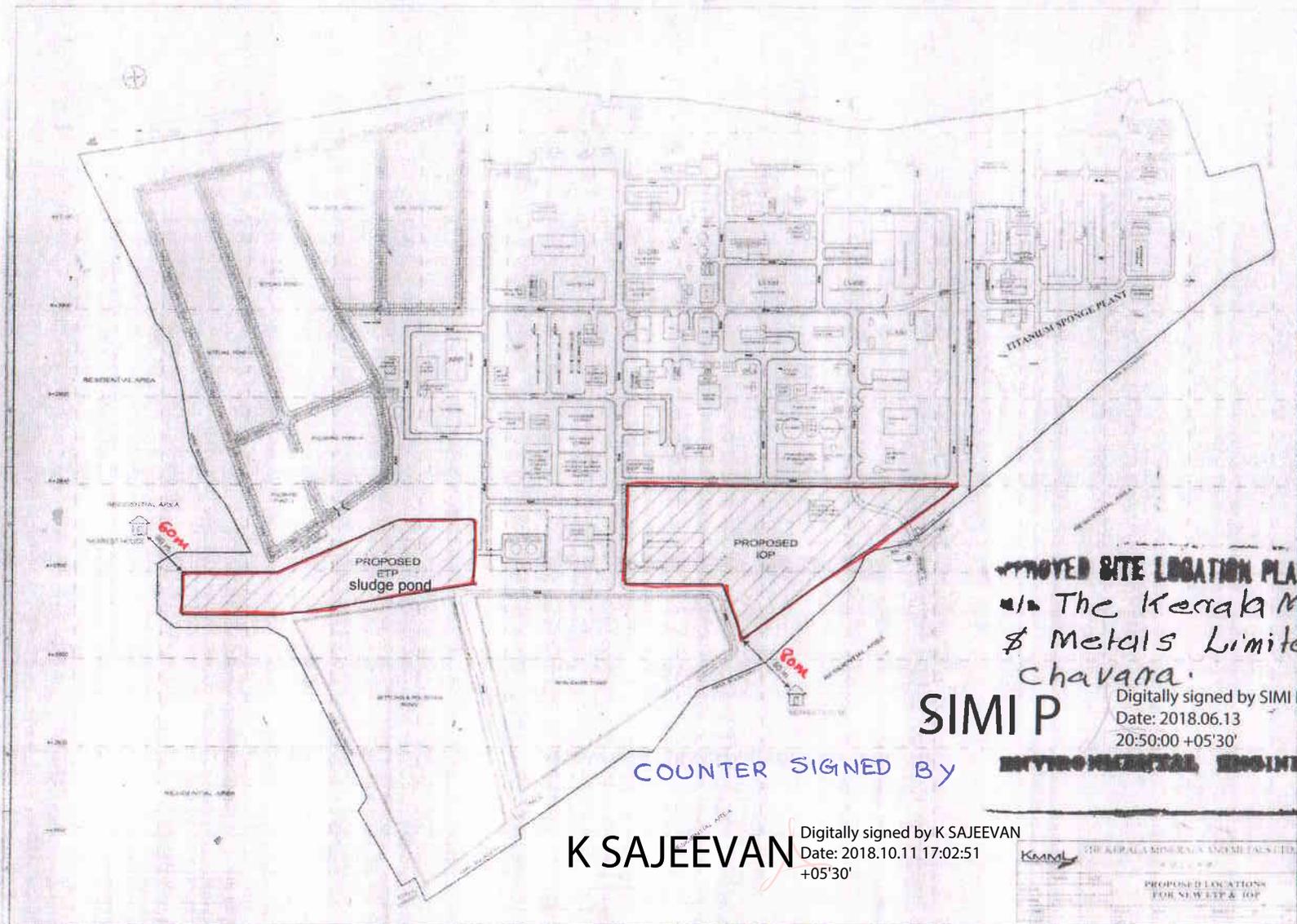
To

Mr. ROY KURIAN K  
Managing Director,  
The Kerala Minerals and Metals Limited,  
Sankaramangalam, Chavara, Kollam.

**1. This digitally signed document is legally valid as per the Information Technology Act 2000**

2. For verifying this document please go to [krocmmms.nic.in](http://krocmmms.nic.in) and search using date of issue/name of the unit/Application Number in "Consent Granted Applications" link in the home page of the Board's Online Consent Management and Monitoring System.





**APPROVED SITE LOCATION PLAN OF**  
 The Kerala Minerals  
 & Metals Limited,  
 Chavara.

**SIMI P**

Digitally signed by SIMI P.  
 Date: 2018.06.13  
 20:50:00 +05'30'

**ENVIRONMENTAL ENGINEER**

COUNTER SIGNED BY

**K SAJEEVAN**

Digitally signed by K SAJEEVAN  
 Date: 2018.10.11 17:02:51  
 +05'30'

CHAIRMAN.

**KRAML** KERALA MINERALS & METALS LTD.  
 PROPOSED LOCATIONS  
 FOR S.W.E.T. & I.O.P.