

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

Original Application No.107 of 2023

Suo Motu based on the news item published
In The New Indian Express, dt. 09.08.2023,
under the caption "Huge pollution risk in 8 Km
around NLC" and in The Times of India,
Chennai Edition dt. 09.08.2023 under the
caption "Water near NLC full of Mercury".

Vs.

The Managing Director,
NLC India Limited,
Chennai and Ors.

...Respondents

INDEX

SL.NO:	DESCRIPTION	PAGE NO:
1.	Joint Committee Report filed by TNPCB as per orders of the Hon'ble National Green Tribunal (SZ)	1 - 66
2.	ANNEXURE - 1	67 - 293



Filed by
Mr.SAI SATHYA JITH
STANDING COUNSEL FOR TNPCB – R-2

Report of the TNPCB Committee as per orders of the Hon'ble National Green Tribunal (Southern Zone) in O.A.No. 107 of 2023(SZ) - Suo Motu based on news item published in The New Indian Express, dt 09.08.2023, under the caption "Huge pollution risk in 8Km around NLC" and in The Times of India, Chennai Edition dt.09.08.2023 under the caption "Water near NLC full of Mercury"



TAMIL NADU POLLUTION CONTROL BOARD

November 2023

INDEX

S. No	Content	Page No.
1.0	Background	1
2.0	Introduction	1
3.0	Study Area – I (M/s. NLC India Limited & Surrounding Area)	2
3.1	M/s. NLC India Limited Mine I	2
3.2	M/s. NLC India Limited Mine IA	4
3.3	M/s. NLC India Limited Mine II	6
3.4	M/s. Neyveli Thermal Power Station I	7
3.5	M/s. Neyveli Thermal Power Station II	8
3.6	M/s. Neyveli Thermal Power Station II Expansion	10
3.7	M/s. NLC Thermal Power Station I Expansion	12
3.8	M/s. Neyveli New Thermal Power Station	14
4.0	Continuous Ambient Air Quality Monitoring Stations in NLCIL Campus	16
5.0	Modern Sewage Treatment Plant for Township	17
6.0	M/s. TAQA Neyveli Power Company Limited (Formerly M/s. STCMS Electric Company)	17
7.0	Study Area –II: M/s.IL&FS Limited & its Surrounding Area	20
8.0	Comparative Study on “Report of analysis of the sample collected by the committee based on the locations mentioned in the article Powering Pollution”	23
9.0	Field observations made by the committee & status of ash dumped site	27
10.0	Evaluation of lignite and coal samples	27
11.0	Ambient air quality survey conducted through mobile continuous ambient air quality monitoring station (MCAAQMS) of TNPCB	28
12.0	Stack monitoring survey conducted at M/s. NLC India Ltd., and M/s.IL&FS Tamil Nadu Power Company Ltd	29

13.0	Comparative study on “Report of analysis of the sample collected by the committee with baseline data available with respect to the previous reports”	30
14.0	Point wise remarks on the article: POWERing Pollution	32
15.0	Conclusion and specific recommendations with respect to the sample analysis	53
16.0	Overall Recommendations	56
17.0	Details of proposed sampling location	63
18.0	Annexures	67
19.0	Photographs	283

LIST OF ANNEXURES

Annex No.	Title	Page. No
1	Consolidated RoA of treated sewage from M/s. NLC India Ltd, Mine I for the year 2018 - 2023	67
2	Consolidated RoA of treated effluent from M/s. M/s. NLC India Ltd., Mine I for the year 2018 - 2023	69
3	Consolidated RoA of the Ambient Air Quality monitoring survey conducted at M/s. NLC India Ltd., Mine I for the year 2018 - 2023	71
4	Consolidated RoA of treated effluent & Seepage water from M/s. NLC India Ltd., Mine IA for the year 2018 - 2023	72
5	Consolidated RoA of the Ambient Air Quality Monitoring Survey Conducted at M/s. NLC India Ltd., Mine IA for the year 2018 - 2023	76
6	Consolidated RoA of treated sewage from M/s. NLC, Mine II for the year 2018 - 2023	77
7	Consolidated RoA of treated effluent & seepage water from M/s. NLC India Ltd., Mine II for the year 2018 - 2023	79
8	Consolidated RoA of treated sewage from M/s. Neyveli Thermal Power Station II for the year 2020 - 2023	83
9	Consolidated RoA of treated effluent from M/s. Neyveli Thermal Power Station II for the year 2018 - 2023	84
10	Consolidated RoA of stack emission survey conducted at M/s. Neyveli Thermal Power Station II for year 2018-2023	86
11	Consolidated RoA of the Ambient Air Quality Monitoring Survey Conducted at M/s. Neyveli Thermal Power Station II for year 2018 - 2023	87
12	Consolidated RoA of treated sewage from M/s. Neyveli Thermal Power Station II expansion for the year 2018 - 2023	88
13	Consolidated RoA of effluent treatment plant of M/s. NLC India Ltd – TPS II Expansion for the year 2019 - 2023	90
14	Consolidated RoA of stack emission survey conducted M/s. Neyveli Thermal Power Station II Exp for year 2018 - 2023	92

15	Consolidated RoA of the Ambient Air Quality Monitoring Survey Conducted At M/s. NLC India Ltd, TPS II Expansion for the year 2018 - 2023	93
16	Consolidated RoA of treated sewage from M/s. NLC India Ltd, TPS – I expansion for the year 2018 - 2023	94
17	Consolidated RoA of treated effluent from M/s. Neyveli Thermal Power Station - I Expansion from the year 2018 - 2023	96
18	Consolidated RoA of stack emission survey conducted at M/S. Neyveli Thermal Power Station I Expansion for year 2018 - 2023	98
19	Consolidated RoA of the Ambient Air Quality Monitoring Survey Conducted at M/s. NLC India Ltd., TPS I Expansion for the year 2018 - 2023	99
20	Consolidated RoA of treated sewage from M/s. Neyveli New Thermal Power Station for the year Dec 2020-Mar 2023	100
21	Consolidated RoA of treated effluent from M/s. Neyveli New Thermal Power Station from the year Sep 2020- March 2023	101
22	Consolidated RoA of stack emission survey conducted at M/s.New Neyveli Thermal Power Station for the year 2020 - 2023	102
23	Consolidated RoA of the Ambient Air Quality Monitoring Survey Conducted at M/s. Neyveli New Thermal Power Station for the year 2020 - 2023	103
24	Consolidated RoA of treated sewage from M/s. NLC India Ltd modern sewage treatment plant for the year 2018 - 2023	104
25	Consolidated RoA of treated sewage from M/s. TAQA Neyveli Power Company Pvt Limited for the year 2020 - 2023	106
26	Consolidated RoA of treated effluent from M/s. TAQA Neyveli Power Company Pvt Limited for the year 2018 - 2023	107
27	Consolidated RoA of stack emission survey conducted at M/s. TAQA Neyveli Power Company Pvt Limited for year 2018 - 2023	108
28	Consolidated RoA of the Ambient Air Quality Monitoring Survey Conducted at M/s. TAQA Neyveli Power Company Pvt Limited for year 2018 - 2023	109
29	Consolidated RoA of treated sewage from M/s. IL &FS Tamil Nadu Power Company Limited for the year 2018 - 2023	110

30	Consolidated RoA of treated effluent from M/s. IL & FS Tamil Nadu Power Company Ltd., for the year 2018 - 2023	112
31	Consolidated RoA of stack emission survey conducted at M/s. IL & FS Tamil Nadu Power Company Limited for the year 2018 - 2023	114
32	Consolidated RoA of the Ambient Air Quality Monitoring Survey Conducted at M/s. IL & FS Tamil Nadu Power Company for year 2018 - 2023	115
33	Comparison report of analysis of the sample, Report of location wise impact of samples and additional sample collected by the committee with article powering pollution,	116
34	Report of analysis of lignite and ash sample collected at M/s. NLC India Ltd	197
35	Report of AAQ survey conducted by the TNPCB mobile CAAQMS in and around Neyveli and Paragipettai	201
36	Stack monitoring survey conducted at M/s. NLC India Ltd. and M/s IL & FS Tamil Nadu Power Company Ltd.	204
37	Comparative statement on report of analysis of the water sample with available baseline data	205
38	Report of analysis of the samples collected by the committee	261

Report of the TNPCB Committee as per orders of the Hon'ble National Green Tribunal (Southern Zone) in O.A.No. 107 of 2023 (SZ) – Suo Motu based on news item published in the New Indian Express, dt 09.08.2023, under the caption “Huge pollution risk in 8 Km around NLC” and in The Times of India, Chennai Edition dt.09.08.2023 under the caption“ Water near NLC full of Mercury”

1.0 Background

Poovulagin Nanbargal and Manthan Adhyayan Kendra have published a report in August 2023 titled '*POWERing Pollution: The Environmental and Pollution Impacts of Thermal Power Stations and mining Operation in Neyveli & Parangipettai*'. In the report, it is mentioned that a comprehensive assessment on both Neyveli and Parangipettai regions have been carried out with the involvement of local communities and bring out new issues that may have not been previously highlighted, identify source of pollution and suggest ways in which the issues could be addressed. It is also mentioned that they carried out water and soil sampling, and also questionnaire-based surveys of the local communities in the surrounding of NLC in Neyveli and ITPCL in Parangipettai. In the report, it is mentioned that several surface as well as ground water sources were found to have high levels of turbidity, hardness, Total Dissolved Solids (TDS), Total Suspended Solids (TSS), Oil & Grease and, high Chemical Oxygen Demand (COD) and presence of elements like Aluminum, Boron, Fluoride, Iron, Manganese, Magnesium, Mercury and Selenium in high concentration.

2.0 Introduction

The Hon'ble National Green Tribunal (Southern Zone) took a Suo Mote Case (O.A. No. 107 / 2023) based on the above article and directed the Tamil Nadu Pollution Control Board (TNPCB) to inspect the area, study the water quality of the water bodies near NLC and also to ascertain whether the news is correct or not.

Based on the directions, the TNPCB has formed a committee comprising of the following officers to inspect the area and collect water and soil samples in the areas referred in the study report and submit a detailed report on or before 23.08.2023 so as to file a report the Hon'ble NGT(SZ) on or before 28.08.2023.

- 1 Dr. R.Rajamanickam, Additional Chief Environmental Engineer, TNPCB
- 2 Thiru S.Sankarasubramanian, Assistant Director, Advanced Environmental Laboratory, Chennai
- 3 Dr. A.Samuel Rajkumar, Joint Chief Environmental Engineer (Monitoring), Cuddalore
- 4 Dr. R.Umayakunjaram, District Environmental Engineer, Cuddalore
- 5 Thiru T.Chitrarasu, Assistant Director, Advanced Environmental Laboratory, Cuddalore

The Committee has inspected the study area I (M/s NLC INDIA LTD & its surrounding area) and study area II (M/s IL&FS LTD) on 11.08.2023, 16.08.2023, 17.08.2023, 23.08.2023, 29.08.2023 and 28.09.2023. In addition to the above, TNPCB has also appointed Thiru N.K. Kuttiappan, Ex Deputy Director, National Productivity Council as an external committee member and the study area I and II was inspected again by the committee on 31.10.2023, 01.11.2023 and 02.11.2023 and collected additional samples. The committee report is submitted as follows

3.0 Study Area – I (M/s.NLC India Limited & Surrounding Area)

M/s. NLC India Limited (NLCIL) is a Government of India Enterprise functioning under the control of Ministry of Coal was incepted in the year 1956, following the finding of lignite deposits in Neyveli, Tamil Nadu. Its core business is lignite mining and thermal power generation. NLCIL currently operates three open cast lignite mines of total capacity of 32.5 Million Tons per Annum (MTPA) and four thermal power stations with a total installed capacity of 3390 MW in Neyveli. The total extent of the NLCIL area is 206 Sq.Km.

3.1 M/s.NLC India Ltd Mine-I

The unit of M/s. NLC India Limited Mine-I was started on 20.05.1957. The unit got first consent of TNPCB on 07.06.1984 for mining of 6.5 Million Tons per Annum (MTPA). Later in 1989, the Ministry of Environment and Forest (MoEF), Government of India issued Environmental appraisal for Mine - I (Expansion) vide proceeding No.J-11015/11/88-IA, dated 06.03.1989. In 2015, the unit obtained environmental clearance for expansion from the MoEF vide proceeding No. J-11015/01/2012-IA-II (M) dated 02.09.2015 for the capacity of 10.5 MTPA with a mine

lease area from 3178.4 Ha to 3635.4 Ha.

The unit has obtained consent to operate from TNPCB vide proceeding dated 06.12.2021 for mining of lignite 10.5 MTPA. The unit was permitted to discharge 186 kilolitres per day (KLD) of sewage on industries own land for green belt development. The unit was permitted to discharge trade effluent quantity of 65480 KLD (mine seepage water) for irrigation. The unit has provided water sprinklers to control the fugitive emissions from lignite storage yards, transfer points and roads. The unit has obtained CTO renewal vide proceeding dated 14.11.2022 with validity up to 31.03.2027. During Inspection of the committee, the unit was in operation.

Water Management

The unit is drawing 65665.0 KLD of water from the sources such as aquifer, mine seepage and rain water. The unit is consuming 185 KLD of aquifer water for domestic purposes. 25 KLD of Mine seepage and rain water is utilized in mini auto service. The remaining water from aquifer, mine seepage and Rain water is partially sent outside the campus for irrigation and partially to artificially created a lake to supply water to Thermal power plants such as to M/s TPS-I Expansion and M/s. New Neyveli Thermal Power Plant.

Waste Water Management

Sewage: The unit has provided Sewage Treatment Plants to treat the canteen waste water/toilet waste water and treated sewage is utilized for greenbelt development. The ROA of the treated sewage samples collected for the year 2018-2023 (5 years) from the outlet of the STP reveals that the parameters were within the standards prescribed by the Board. (Consolidated ROA-Annexure-1)

Trade Effluent: The trade effluent generated from the following sources: (a) Trade effluent-I(aquifer, seepage and rainwater), (b)Trade effluent-II(mini auto service). The ROA of the treated effluent samples collected for the year 2018-2023 (5years) from the outlet of the ETP reveals that the parameters were within the standards prescribed by the Board except the exceedance of pH (8/45). The ROA of the seepage water samples collected for the year 2018-2023 (5 years) from the outlet of the seepage reveals that the parameters were within the standards prescribed by the Board except the exceedance of pH(1/45).(Consolidated ROA-Annexure-2)

Air Pollution Management

The unit has provided water sprinkler systems to control the fugitive emission generated from lignite storage yard, lignite transfer points & lorry movement on road. Consolidated ROA of the Ambient Air Quality Monitoring survey in the year 2018 - 2023 all the parameters were within the standards prescribed by the Board except PM₁₀ in the range of 579 µg/m³(1/10) which is slightly higher than 500µg/m³.(Consolidated ROA-Annexure-3).

Solid waste Management

Mines Overburden soil

It is reported that the existing external overburden (OB) dump yard area is 478.4 Hectares and about 239.1 MM³ (million cubic metre) is dumped until 2015 and afterwards there is no external OB dumping. It is also reported that, the overburden excavated during mining operation till inception upto 01.07.2023 is 2208.07 MM³ and the same quantity is back filled into the voids formed due to excavation of Lignite. The area reclaimed since inception is 1240.65Ha.

Hazardous waste Management

The unit has obtained authorization under Hazardous and Other Wastes (Management and Trans- boundary Movement) Rules, 2016 vide proceeding dated 12.01.2016 with validity up to 11.01.2021 and subsequently renewed up to 31.03.2028.

Green Belt Development

The development of Greenbelt carried out in Mine-I is given vide Plate No.-1

3.2 M/s. NLC India Ltd Mine IA

The unit of M/s. NLC India Limited Mine IA has obtained Consent to Operate for mining of 3 MTPA of lignite vide proceeding dated 28.03.2003 and further renewal up to 31.03.2020.Later, the unit has obtained environmental clearance from the MoEF, GoI vide J-11015/02/2012-IA.II (M) dated 02.09.2015 for expansion from 3 MTPA to 7 MTPA in a total project area of 2005.8 hectares. The unit has obtained CTE for expansion vide proceeding dated 03.07.2019 with a validity upto 01.09.2022.Later the unit has obtained CTO expansion from 3 MTPA to 7 MTPA

vide proceeding dated 19.02.2020. The unit is permitted to discharge 4 KLD of sewage and 1,05,777.3 KLD of trade effluent (mine seepage water and rainwater) for irrigation, supply to Chennai Metro Water, mine spraying and their power plants. Consent is renewed upto 31.03.2026. During inspection of the committee, the unit is in operation.

Water Management

Around 6.2 KLD is utilized for domestic purposes. The aquifer water of 59975.0 KLD is utilized in M/s. NLC India TPS- I Expansion and M/s. New Neyveli Thermal Power Plant. Further, 13090.0 KLD of mine seepage and rain water is supplied to Chennai Metro Water during summer. 25 KLD of mine seepage is utilized in Mini Auto service. The remaining 32551.6 KLD of water from mine seepage and rain water is sent to outside for irrigation.

Waste Water Management

Sewage: The sewage generated from the Mine IA is pumped to the Modern Sewage treatment plant, maintained by township which is located nearer to the Mine – IA.

Trade Effluent: The trade effluent is generated from the following sources: (a) Trade effluent - I (aquifer, seepage and rain water), (b) Trade effluent - II (mini auto service). The ROA of the seepage water and outlet of ETP collected for the year 2018-2023 (5years) from the ETP and outlet of the seepage water reveals that the parameters were within the standards prescribed by the Board. (Consolidated ROA-Annexure -4).

Air Pollution Management

The unit has provided water sprinkler system to control the fugitive emission generated from lignite storage yard, lignite transfer points and lignite transport by trucks. Consolidated ROA of the AAQ survey in the year 2018-2023 (5 years) reveals that all the parameters were within the standards prescribed by the Board. (Consolidated ROA - Annexures-5).

Solid waste Management

Mine Overburden Soil

It is reported that the over burden excavated during mining operation till

inception upto 01.07.2023 is 557.12 MM³ and the same quantity is backfilled into the voids formed due to excavation of lignite. The area reclaimed from inception is 360.69 Ha.

Hazardous waste Management

The unit has obtained the authorization under Hazardous and Other Wastes (Management and Trans - boundary Movement) Rules, 2016 vide proceeding dated 12.01.2016 with validity upto 11.01.2021 and subsequently renewed upto 31.03.2028.

Green Belt Development

The development of Green belt carried out in Mine-IA is given vide Plate No.-2.

3.3 M/s. NLC India Ltd Mine II

The unit of M/s. NLC India Limited Mine-II has obtained Environmental Clearance from the Ministry of Environment and Forest vide No. J 11015/30/2001-IA.II (M) dated 24.02.2002 for setting up an open cast lignite mining of 15.0 MTPA. Based on that, the unit has obtained CTO from TNPCB under Water and Air Acts for 15 MTPA vide Board Proc. Dated 31.10.2022 with validity upto 31.03.2027. The unit is permitted to discharge 100 KLD of sewage, 78475 KLD of trade effluent (Seepage and rain water). During inspection of the committee, the unit is in operation.

Water Management

Totally about 90253 KLD of seepage water/ rainwater including 30 KLD used for domestic purpose is generated from the unit. About 11778 KLD seepage/rain water is utilized in M/s. NLC India Limited TPS-II and M/s. NLC India Limited TPS-II Expansion, 25 KLD of mine seepage is utilized in Mini Auto service and the remaining 78450 KLD of water from mine seepage and rain water is sent to outside for irrigation.

Waste Water Management

Sewage: The unit has provided sewage treatment plant to treat the sewage from canteen and toilet. The ROA of the treated sewage samples collected for the year 2018-2023 from the outlet of the STP reveals that the parameters were generally within the standards prescribed by the Board except the exceedance of

TSS(2/52),BOD (15/52),COD(10/52).(Consolidated ROA-Annexure-6)

Trade Effluent: The trade effluent generated from the following sources:

(a) Trade effluent- I (aquifer, seepage and rainwater), (b) Trade effluent-II (mini auto service). Treated trade effluent from mini auto service unit is discharged into eastern garland canal which is used for irrigation purposes. ROA of the treated trade effluent samples collected from the ETP outlet and seepage water reveals that, most of the parameters were within the standards prescribed by the Board except the exceedance of pH(4/50).(Consolidated ROA -Annexure-7).

Air Pollution Management

The unit has provided water sprinklers at lignite storage yard, lignite transfer points, and haul roads. Consolidated ROA of the AAQ survey in the year 2020-2021, 2021-2022 and 2022-2023 reveals that all the parameters are within the standards prescribed by the Board.

Solid Waste Management

Mine Over burden Soil

It is reported that the mine overburden soil excavated during mining operation till inception upto 01.07.2023 is 2206.62 MM³ and the same is back filled into the voids formed due to excavation of Lignite. The area reclaimed since inception is 1171.90 Hectares.

Hazardous Waste Management

The unit has obtained authorization under Hazardous and Other Wastes (Management and Trans- boundary Movement) Rules, 2016 valid up to 23.05.2023 and subsequently renewed up to 31.03.2028.

Green Belt Development

The development of Green belt carried out in Mine-II is given vide PlateNo.-3

3.4 M/s. Neyveli Thermal Power Station- I

The unit of M/s. Neyveli Thermal Power Station I was commissioned in the year 1960. The unit has obtained CTO vide proceeding dated T1/TNPCB/3652/822

dated 23.11.1984 and subsequently renewed upto 31.3.2020. The unit has operated 6 x 50 MW and 3 x 100 MW plants. After service of six decades and considering the conditions of plant and machineries, the unit has decommissioned the plant in the year 2020.

3.5 M/s. Neyveli Thermal Power Station- II

The unit M/s. Neyveli Lignite Corporation Limited Thermal Power station II has obtained environment clearance from the MoEF vide letter No.14/13/82-Env.2 dated 05.01.1983 for the capacity 7x 210 MW. The unit has obtained CTO under the Water and Air Acts vide dated 22.03.1991 with validity up to 31.03.1991 and subsequently renewed up to 31.03.2019. Further, the unit has obtained for CTO vide dated: 10.08.2021 with a validity upto 31.03.2022 and obtained renewal up to 31.03.2027 for the operation of 7 x 210 MW. The unit was consented to discharge 142 KLD of sewage for green belt development and 89040 KLD of trade effluent discharged into outside the unit for irrigation after treatment. The unit is consented to discharge emissions from three boilers through stack of 170 meter each and four boilers with stack of 220 m each. During Inspection of the committee, the unit was in operation.

Water & Waste Water Management

About 121621 KLD of water is sourced from the seven numbers of bore well and the Mine-I discharge water from the artificial lake is utilized for cooling tower make up the unit

Sewage: The unit has provided sewage treatment plant and the treated sewage is utilized for green belt development within the industry's premises. ROA of the treated sewage reveals that, most of the parameters are within the standards prescribed by the Board except the exceedance of - TSS 1/27, BOD (4/27), COD(2/27) Ammonical nitrogen (1/27) (Consolidated ROA - Annexure-8).

Trade effluent: The unit has provided Effluent Treatment Plant and the treated trade effluent is discharged into nearby channel for irrigation purposes. During inspection it was observed that, the treated trade effluent has brown colour due to improper removal of Total Suspended Solids. The unit has provided the Online Effluent Quality Monitoring system (online sensor) for pH, Temperature, TSS in the treated trade effluent disposal line and is connected with Water Quality Watch, TNPCB, Chennai.

ROA of the treated trade effluent samples collected for the year 2018-2023 (5years) reveals that, most of the parameters are within the standards prescribed by the Board except the exceedance of TSS (2/53), TDS (3/53), BOD (2/53). (Consolidated ROA - Annexure-9).

Air Pollution Management

The unit has provided common stack along with Electro Static Precipitator (ESP) for the boilers. During the time of inspection on 31.10.2023, five boilers were in operation and it was observed that the value of SO₂ for the unit 2 was 877.76 mg/Nm³, for the unit 4 was- 1162.31 mg/Nm³, for the unit 5 was -1425 mg/Nm³, for the unit 6 was- 642.01 mg/Nm³ and for the unit 7 was- 1501.88 mg/Nm³. The unit has provided 1 No of dust extraction system in the lignite conveying system and also the unit has provided automatic medium velocity water sprinklers in the lignite handling system in order to suppress the dust emanating during the operation. The unit has provided bag filter for the fly ash silo. Consolidated ROA of the Stack emission survey in the year 2018-2023 reveals that PM (4/10) NO_x (4/10) and SO_x (10/10) (Consolidated ROA-Annexure-10)

The unit has provided continuous online stack monitoring system for parameters SPM, SO₂ and NO_x for each unit and connected the same to CAC, TNPCB, Chennai.

During inspection it was reported that, since the power purchase agreement will end up in the year 2028-2029 (42 years), the management has not firmed up the implementation plan for FGD. Consolidated ROA of the AAQ survey in the year 2018-2023 reveals that all the parameters are within the standards prescribed by the Board except the exceedance of PM₁₀ (6/10) PM_{2.5} (5/10) SO_x (4/10) and NO_x (4/10) (Consolidated ROA -Annexure-11)

Solid Waste Management

Fly ash Management

The unit is disposing the fly ash to cement industries and brick manufactures. The bottom ash is being sent to Mine-I of M/s NLC India Ltd for back filling in the mined area.

Hazardous Waste Management

The unit has obtained the authorization under Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2016 vide Board's Proceeding dated 09/02/2016 with validity up to 08.02.2021 for handling of used oil/spent oil, spent ion exchange resins and subsequently renewed up to 31.03.2028.

Green Belt Development

The development of Green belt carried out in TPS-II is given vide Plate No.4.

3.6 M/s. Neyveli Thermal Power Station- II Expansion

The unit M/s. Neyveli Lignite Corporation Limited Thermal Power Station II has obtained Environment Clearance from the MoEF vide letter No. J13011/8/2002-IA.11(T) dated 9.01.2003. Based on that, the unit has obtained CTE under Water and Air Acts vide dated 07.07.2005 and the unit has obtained CTO under Water and Air Acts vide dated 04.01.2011 with valid upto 31.03.2011 to produce electric power 2 x 250 MW and it was further renewed upto 31.03.2027. The unit was consented to discharge 150 KLD of sewage and 21440 KLD of trade effluent. The unit is consented to discharge emission from two boilers 850 TPH through a stack of 220m. During Inspection of the committee, the unit was in operation.

Water & Waste Water Management

The main water source of the plant is from Mine-I discharge water and it is collected in the artificial lake, situated within the NLC campus.

Sewage: The unit has provided sewage treatment plant and the treated sewage is being utilized for green belt development within the industry's premises. ROA of the treated sewage samples collected for the year 2018-2023 from the outlet of the STP reveals that most of the parameters are within the standards prescribed by the Board except the exceedance of pH 1/48 and BOD (3/48). (Consolidated ROA -Annexure-12).

Trade effluent: The unit has provided ETP and the treated trade effluent is being recycled within the process. The unit has provided the Online Effluent Quality Monitoring system for pH, Temperature, TSS in the treated trade effluent disposal line and is connected with Water Quality Watch, TNPCB, Chennai. ROA of the treated trade effluent samples collected for the year 2018-2023 (5 years) from the outlet of ETP reveals that, most of the parameters are within the standards

prescribed by the Board except the exceedance of-TDS(4/43),(Consolidated ROA - Annexure-13)

Air Pollution Management

The unit has provided common stack along with Electrostatic Precipitator (ESP) for the boilers. The unit has provided Circulating Fluidized Bed Combustion (CFBC) Boilers with limestone bed material to control SO₂ emission. During the time of inspection on 31.10.2023 one boiler was in operation and the value of So₂ was - 364.8 mg/Nm³ and the unit has provided continuous online stack monitoring system for parameters SPM, SO₂ and NO_x, for each unit which is connected to CAC, TNPCB, Chennai. The unit has provided bag filter for the fly ash silo. The unit has provided 3 Nos of dust extraction system in the lignite conveying system and also provided automatic medium velocity water sprinklers in the lignite handling system in order to suppress the dust emanating during the operation.

ROA of the Stack emission survey in the year 2018-2023(5 years) reveals that all the parameters are within the limit prescribed standard except SO_x (1/10). (Consolidated ROA - Annexure-14). Consolidated ROA of the AAQ survey in the year 2018-2023 (5years) reveals that PM₁₀ (3/10), PM_{2.5} (2/10), SO_x(1/10) and NO_x (1/10) (Consolidated ROA-Annexure-15)

Solid Waste Management

Fly Ash Management

The unit is disposing the fly ash to cement industries and brick manufactures. The bottom ash is being sent to Mine-II of M/s NLC India Ltd for back filling in the mined area.

Hazardous Waste Management

The unit has obtained the authorization under Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2016 vide Board's Proceeding Dated 09.02.2016 and valid up to 08.02.2021 for handling of used oil/spent oil, spent ion exchange resins and subsequently renewed up to 31.03.2028.

Green belt Development

The development of Greenbelt carried out in TPS-II Expansion is given vide Plate No.-5.

3.7 M/s. Neyveli India Ltd- Thermal Power Station I - Expansion

The unit M/s. Neyveli Lignite Corporation Limited has obtained Environment Clearance from the MoEF for Expansion of Unit-I vide letter No.J13011/31/87-IA II dt 29.06.1990 for a capacity 2 x 210 MW. Based on that, the unit has obtained CTE under Water and Air Acts vide proceeding dated 22.02.2001 with validity up to 21.02.2003. Later the unit has obtained CTO under Water and Air Acts vide dated 21.07.2006 with valid upto 31.03.2007 and further renewed upto 31.03.2024. The unit is consented to discharge 385 KLD of sewage and 9000 KLD of trade effluent. The unit is consented to discharge emission from two nos. of 690 TPH boilers through a 220 m stack. During inspection of the committee, the unit was in operation.

Water & Waste Water Management

The main water source of the plant is from Mine-I/1A discharge water and it is collected in the artificial lake, situated within the NLC campus. In addition, the unit is drawing ground water also at the rate of 500 KLD for the boiler make up to produce steam and also for domestic consumption from 1 number of borewell.

Sewage: The unit has provided sewage treatment plant for the treatment of the sewage and canteen wastewater and the treated sewage is utilized for green belt development within the industry's premises. ROA of the treated sewage samples collected for the year 2018-2023 from the outlet of the STP and it reveals that most of the parameters were within the standards prescribed by the Board except the exceedance of - pH (1/55), BOD(6/55) and COD (1/55).(Consolidated ROA - Annexure-16)

Trade effluent: The unit has provided effluent treatment plant and the treated trade effluent is discharged into nearby channel for irrigation purposes. ROA of the treated trade effluent samples collected for the year 2018 - 2023 reveals that most of the parameters are within the standards prescribed by the Board except the exceedance of - except the exceedance of pH (1/55), TDS (1/55). (Consolidated ROA - Annexure-7). The unit has provided the Online Effluent Quality Monitoring system (online sensor) for pH, Temperature, TSS in the treated trade effluent disposal line and is connected with Water Quality Watch, TNPCB, Chennai.

Air Pollution Management

The unit has provided common stack along with ESP for the boilers. The unit has provided continuous online stack monitoring system for parameters SPM, SO₂ and NO_x, for each unit and connected the same to CAC, TNPCB, Chennai. The unit has provided bag filter for the lignite crusher house. The unit has provided 4 Nos of dust extraction system in the lignite conveying system and automatic water sprinklers in the lignite handling system to suppress the dust. During the time of inspection on 31.10.2023 two boilers were in operation and it was found that the level of SO₂ in stack in unit 1 was - 1187 mg/Nm³ and in unit 2 was - 2295 mg/Nm³

ROA of the stack emission survey in the year 2018-2023 reveals that PM (2/10), NO_x (1/10) and SO_x (7/10) exceeded the standards. (Consolidated ROA - Annexure-18). To meet the SO_x norms in the stack emission, the unit has proposed to install Flue Gas De-sulfurization (FGD) system and it is planned to complete as per the time line given by MoEF & CC (i.e) 31.12.2026. During inspection, it is reported that tendering is in progress for installation of FGD. The unit has to complete the same on or before 31.12.2026 as per notification.

Consolidated ROA of the Ambient Air Quality Monitoring survey in the year 2018 - 2023 (5 years) reveals that all the parameters were within the standards prescribed by the Board except the exceedance of - PM₁₀ (4/10), PM_{2.5} (6/10) SO_x (2/10) and NO_x (2/10). (Consolidated ROA - Annexure -19).

Solid Waste Management

Fly Ash Management

The unit is disposing the fly ash to cement industries and brick manufactures. The bottom ash is being sent to Mine-I of M/s NLC India Ltd for back filling in the mined area.

Hazardous Waste Management

The unit has obtained the authorization under Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016 vide Board's Proceeding Dated 09.02.2016 and valid up to 08.02.2021 for handling of used oil/spent oil, spent ion exchange resins and renewed upto 31.03.2028.

Green belt Development

The development of Green belt carried out in TPS-I Expansion is given vide Plate No.-6.

3.8 M/s. Neyveli New Thermal Power Station

The unit M/s. Neyveli New Thermal Power Station has obtained Environment Clearance was obtained from the MoEF for the capacity 2x500MW vide MoEF Letter J-13012/250/2007-IA.II (T) dated 21.10.2010. Based on that the unit has obtained CTE from TNPCB under Water and Air Acts vide proceeding dated 12.01.2012 with validity up to 31.03.2014. Later the unit has obtained CTO vide proceeding dated 26.04.2019 with validity up to 31.03.2021 to produce electric power 2 x 500 MW and further CTO was issued with a validity upto 31.03.2024.

The unit is consented to discharge 35 KLD of sewage and 14136 KLD of trade effluent. The treated trade effluent is recycled to the process. The unit has two boilers of 1600 TPH and consented to discharge emission through a 275m stack. During inspection of the committee, the unit is in operation.

Water & Waste Water Management

The main water source of the plant is from Mine-I/IA discharge water and it is collected in the artificial lake, situated within the NLC campus

Sewage: The unit has provided sewage treatment plant for the treatment of the sewage and canteen wastewater generated and the treated sewage is disposed on land for green belt development within the industry's premises. ROA of the treated sewage samples collected for the year December 2020-2021, 2021-2022 and 2022 - 2023 from the outlet of the STP reveals that most of the parameters are within the standards prescribed by the Board except the exceedance of - pH (1/31)and BOD (1/31).(Consolidated ROA-Annexure-20).

Trade effluent: The unit has provided effluent treatment plant and the treated trade effluent is being recycled to the process. The unit has provided the online effluent quality monitoring system for pH, Temperature, TSS in the treated trade effluent disposal line and is connected with Water Quality Watch, TNPCB, Chennai. ROA of the treated trade effluent samples collected for the year September 2020-2021, 2021-2022 and 2022-2023 from the outlet of ETP reveals that most of the parameters are within the standards prescribed by the Board except the exceedance of - pH (6/32), TDS 8/32chloride (1/32). (Consolidated ROA -Annexure-21).

Air Pollution Control Measures

The unit has provided common stack along with ESP for the boilers. The unit has provided continuous online stack monitoring system for parameters SPM, SO₂ and NO_x, for each unit and connected the same to CAC, TNPCB, Chennai. During the time of inspection on 31.10.2023 two boilers were in operation and it was noticed that the level of SO₂ in stack of unit 1 was 2212 mg/Nm³ and for the unit 2 was 2725 mg/Nm³. The unit has provided bag filter for the lignite crusher house. The unit has provided 4 Nos of dust extraction system in the lignite conveying system and automatic water sprinklers in the lignite handling system to suppress dust.

ROA of the Stack emission survey in the year 2020-2023 reveals that the following parameters are exceeded the standards PM (5/6), SO_x (6/6) and NO_x (6/6) (Consolidated ROA - Annexure-22). During inspection it was observed that, the unit has started the construction activity for FGD system and planned to complete the same on or before 31.12.2026 as per notification.

ROA of the AAQ survey in the year 2020-2021, 2021-2022 and 2022-2023 reveals that all the parameters are within the standards prescribed by the Board except the exceedance of PM₁₀(2/6). (Consolidated ROA - Annexure-23).

Fly Ash Management

The unit is disposing the fly ash to cement industries and brick manufactures. The bottom ash is being sent to Mine-I of M/s NLC India Ltd for back filling in the mined area.

Hazardous Waste Management

The unit has made agreement with M/s. Dalmia Cements for disposing the spent resin and oil soaked cotton waste. Spent resin is stored in the MS drums in the hazardous waste storage shed. Spent oil is stored in the closed shed. Agreement is made with M/s. MSTC for disposing the spent oil. The unit has applied for hazardous waste authorization to the Board and the application is under process.

Greenbelt Development

The development of Greenbelt carried out in Neyveli New Thermal Power Station is given vide Plate No.-7

Overall Fly Ash Disposal by all Thermal Power Stations

M/s. NLCIL reported that all the power plants (viz., TPS I Exp, TPS II, TPS II Exp & NNTPS) are achieving 100% ash utilization since 2013 by supplying the generated ash to brick manufacturing companies, cement manufacturing companies, filling of mine voids, low lying areas etc., complying with MoEF&CC, Fly Ash Notification. The details of fly ash generation and utilization during FY 2022-2023 is given below:

		TPS I Exp	TPS II	TPS II Exp	NNTPS
Generation	Total Ash(Dry Fly Ash + Bottom Ash) in Tons	2,25,737.8	7,74,991.2	1,42,172	4,53,890
	Total Dry Fly Ash in Tons	1,65,956.2	3,36,742.3	1,12,150	4,07,195
	Total Bottom Ash in Tons	59,781.6	4,38,248.9	30,022	46,695
Utilization	Total Dry Fly Ash in Tons	1,65,956.2	3,36,742.3	1,12,150	4,07,195
	Total Bottom Ash in Tons	59,781.6	4,38,248.9	30,022	46,695
	% of Total Ash Utilization	100%	100%	100%	100%

4.0 Continuous Ambient Air Quality Monitoring Stations in NLCIL campus

TNPCB has directed the NLCIL to install Continuous Ambient Air Quality Monitoring System (CAAQMS). Based on that NLCIL have installed seven CAAQMS in and around the units of NLCIL and connected to TNPCB's Care Air Centre. Installation of two additional CAAQMS is in progress.

The details of the locations of the CAAQMS are as below:

S.No	Station	Location	Status
1	Mine – I	Block 8	Installed
2	Mine – IA	Vadakuthu	Under progress

3	Mine – II	Administrative Office	Installed
4	TPS - I Exp/ Mine- I	Block 6	Installed
5	TPS – II	Inside TPS- II premises	Installed
6	TPS-II Exp	Inside TPS- II Expn premises	Installed
7	Mine-II	Substation near Muthanai	Under progress
8	NNTPS	Inside NNTPS premises	Installed
9	CARD	Inside CARD	Installed

M/s. NCLIL has provided LED display boards at prominent places and entrances of the units and displaying the environmental monitoring data to the public.

5.0 Modern Sewage Treatment Plant for Township

The unit of M/s. NLC India Limited has established a Sewage Treatment Plant and obtained CTO from Board under Water and Air Acts vide Board Proceedings No.DEE/TNPCB/CUD/OL/A&W/2004 dated 23.12.2004 and subsequently renewed with validity up to 30.03.2025. The unit has installed 30 MLD capacity of STP to treat the sewage from NLC Township. Treated sewage is discharged into Kanniakoil Odai which is used for irrigation in the downstream and partially utilized for Golf ground, green belt development in Town ship area. ROA of the treated sewage samples collected for the year 2018- 2023 (5 years) from the outlet of the STP reveals that, most of the parameters are within the standards prescribed by the Board (Consolidated ROA – Annexure -24).

6.0 M/s. TAQA Neyveli Power Company Limited (Formerly M/s. STCMS Electric Company)

The environment clearance was issued to the M/s. Neyveli India Limited from MoEF for Vide letter No.J-13011/31/97-IA dated 23.12.1988 for the capacity 210 MW. Meanwhile, the environmental clearance issued to M/s. NLC Ltd has been transferred to the unit M/s.STCMS Electric Company vide MoEF letter dated No. J-13011/9/94-1&III dated 12.05.1994 for the capacity 250MW.

The unit M/s. STCM Electric Company has obtained CTO under the Water and Air Acts vide dated 24.12.2004 with valid upto 31.03.2005 and subsequently renewed up to 31.03.2015. Further, the unit has obtained for Consent to Operate (CTO) in the name of M/s. TAQA Neyveli Power Company Limited vide dated:

19.07.2017 with a validity up to 31.03.2020 and obtained renewal of consent up to 31.03.2025 for the operation of 250 MW.

The unit was consented to discharge 42 KLD of treated sewage for green belt development, sullage from canteen of 3 KLD for gardening and 2160 KLD of treated trade effluent discharged for inland surface water and 8820 KLD utilized for dust suppression, chlorination, gardening, cooling tower make up and ash handling plant. The unit is consented to discharge emissions from 735 T/Hr boilers through ESP with stack of 220 metre and auxiliary boilers with stack height of 60 m. During inspection of the committee on 02.11.2023, the unit was under shut down for maintenance.

Water & Waste Water Management

The main water source of the plant is ground water and the unit has provided 12 Nos of bore wells inside the unit premises. The unit has obtained NOC from Central Ground Water Authority vide No. 2I/CGWA/NEYVELI /99-766 dated 16/03/2000 to draw the quantity of 1090 m³/Hr. The unit is utilizing ground water of quantity 21000 KLD, out of which the unit is utilizing cooling and boiler feed as 19332 KLD, process 144 KLD, domestic 60 KLD and green belt etc., 1464 KLD.

Sewage: The unit has provided the Sewage Treatment Plant for the treatment of sewage and sullage generated from the canteen. The treated sewage is being utilized for green belt development inside the premises. The unit has obtained separate consent order for this sewage treatment plant vide proc 26.07.2021 with a validity up to 31.03.2023 for the capacity of 45 KLD and subsequently renewed up to 31.03.2028. ROA of the treated sewage reveals that, most of the parameters are within the standards prescribed by the Board except the exceedance of BOD (2/24) (Consolidated ROA – Annexure - 25)

Trade effluent: The unit has provided Effluent Treatment Plant and the treated trade effluent of 2160 KLD is discharged into nearby channel for irrigation purposes and 8820 KLD is utilized for dust suppression, chlorination, ash handling plant and balance quantity is evaporation loss in the cooling tower. The unit has provided the Online Effluent Quality Monitoring system (online sensor) for pH, Temperature, TSS in the treated trade effluent disposal line and is connected with Water Quality Watch,

TNPCB, Chennai. ROA of the treated trade effluent samples collected for the year 2018 - 2023 reveals that, all the parameters are within the standards prescribed by the Board. (Consolidated ROA – Annexure -26)

Air Pollution Management

The unit has provided stack with electrostatic precipitator (ESP) for the boiler. The unit has provided 1 No. of dust suppression/Fogging system in the lignite conveying system / stock yard. The unit has provided bag filter for the fly ash silo. Consolidated ROA of the Stack emission survey in the year 2018-2023 reveals that all parameters are within limit prescribed by the Board except SO_x (10/10) (Consolidated ROA - Annexure-27) The unit has provided continuous online stack monitoring system for parameters SPM, SO₂ and NO_x, for each unit and connected the same to CAC, TNPCB, Chennai. It was observed that the unit has not taken steps to implement the installation of FGD. Consolidated ROA of the AAQ survey in the year 2018-2023 reveals that all the parameters are within the standards prescribed by the Board (Consolidated ROA - Annexure-28)

Fly Ash Management

The unit is disposing the fly ash to cement industries and brick manufactures. Bottom ash is disposing through brick manufactures based on their request and remaining quantity of the bottom ash is sent to ash pond.

The details of Fly Ash generation & Utilization during FY 2022-23 is given below:

TAQA Power Company Limited		
Generation	Total Ash (Dry Fly Ash + Bottom Ash) in Tons	54775.37
	Total Dry Fly Ash in Tons	43821.74
	Total Bottom Ash in Tons	10953.625
Utilization	Total Dry Fly Ash in Tons	41369.74
	Total Bottom Ash in Tons	10150.9675
	% of Total Ash Utilization	94.06%

Hazardous Waste Management

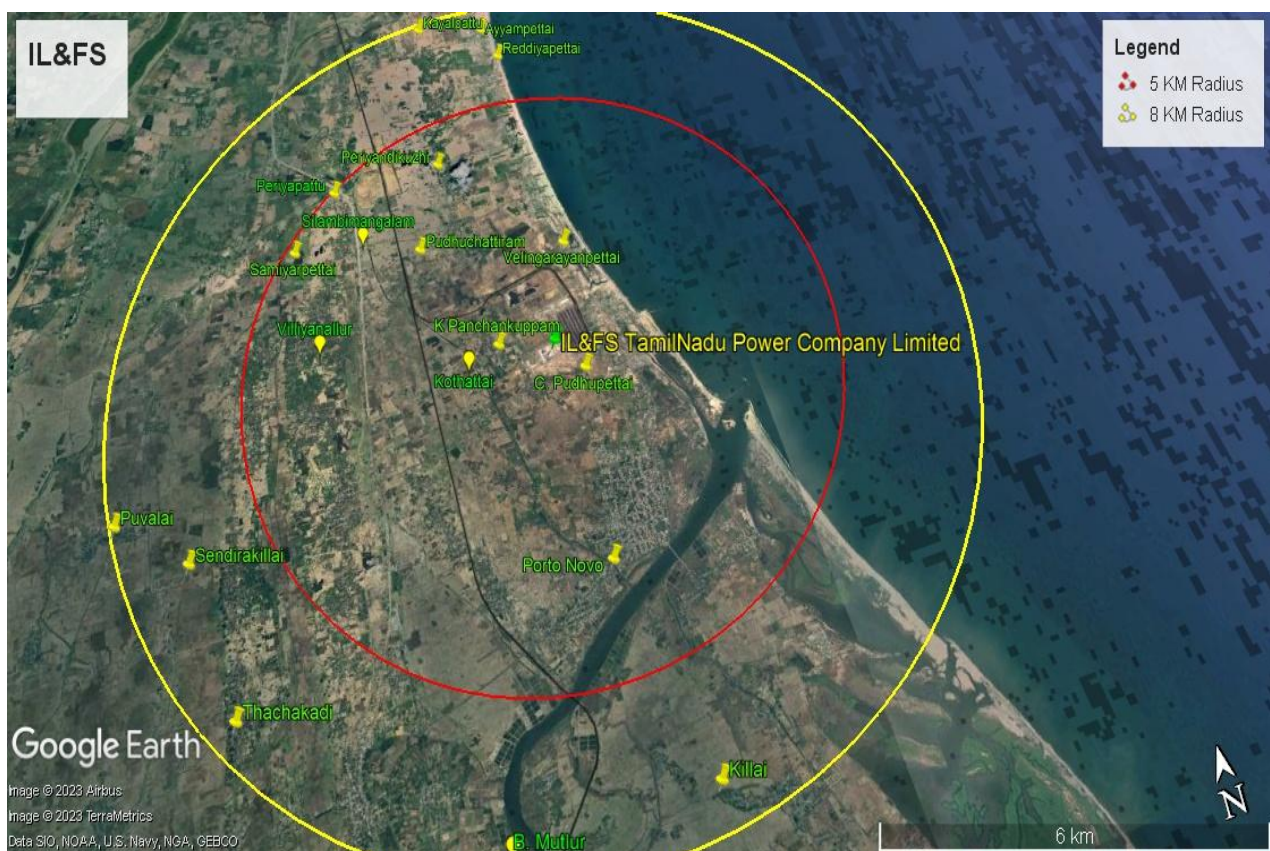
The unit has obtained the authorization under Hazardous and Other Wastes

(Management and Trans-boundary Movement) Rules, 2016 vide Board's Proc. Dated 31.01.2018 and valid up to 30/01/2023 for handling of used oil/spent oil, wastes or residue containing oil. The unit has applied for fresh authorization and the application is under progress.

Greenbelt Development

The unit has developed green belt inside unit premises around 28,658 trees in 22.00 Hectares.

7.0 Study Area –II (M/S. IL&FS Limited & its surrounding area)



The unit of M/s. IL&FS Tamil Nadu Power Company Limited has obtained environmental clearance from Ministry of Environment and Forest vide J13012/34/2008-IA.II (T) dated 31.05.2010 for setting up a thermal power plant of 2X600MW and 3X 800 MW and also 30 MLD desalination plant. The unit has obtained environmental and CRZ clearance for captive port of capacity 15MTPA and 30 MLD desalination plant from MoEF vide F.No. 11-43/2010 –IA-III dated 29.10.2010. Based on that the unit has obtained CTE from Board under Water and

Air Acts to manufacture 2x600 MW Power and 12 MLD desalination plant vide Board Proceeding Dated 14.06.2011.

The unit has obtained CTO from the Board vide dated: 15.04.2016 with a validity up to 31.03.2017 and further renewed up to 31.03.2028 for the operation of 2 x 600 MW units and 10 MLD desalination plant. The unit is consented to discharge 840 KLD of sewage, 205705 KLD of trade effluent. The unit is consented to discharge emission from boiler through a stack of 275 metre height. During inspection of the committee, both units were under operation. The imported coal is used as fuel. Ash and sulphur content of coal is 6% and 0.8% respectively.

Water Management

The unit is drawing water from the Bay of Bengal located in the Eastern side of the plant. The unit has provided desalination plant of 10MLD contains two stages (a) Sea Water Reverse Osmosis Plant (b) Brackish Water Reverse Osmosis. Treated Water from BWRO is used for domestic purpose and for demineralised plant. The demineralised water is used for make up in boiler, electro chlorination plant and condensate polishing unit regeneration. Reject from Brackish Water Reverse Osmosis and cooling tower blow down are collected in central monitoring basin from there it is discharged into sea (Bay of Bengal) through pipeline.

Waste Water Management

Sewage: The unit has provided Sewage Treatment Plant and the treated sewage is used for on land for green belt development. The ROA of the treated sewage samples collected for the year 2018-2023 (5 years) from the outlet of the STP reveals that, most of the parameters are within the standards prescribed by the Board except the exceedance of - BOD (6/52) COD (4/52) Nitrogen (1/52) (Consolidated ROA- Annexure - 29).

Trade Effluent: The trade effluent generated from cooling tower blow down and sea water reverse osmosis reject are collected in guard pond and discharged into the sea. Trade effluent from oil waste water treatment plant, coal waste water treatment plant, DM plant regeneration, boiler blow down and condensate polishing unit regeneration are treated in the ETP and used for dust suppression, coal handling plant and plant wash. Consolidated ROA of the treated trade effluent samples

collected from the ETP outlet reveals that most of the parameters are within the standards prescribed by the Board except the exceedance of - BOD (1/52), sulphide (4/52) and chloride (5/52) (Consolidated ROA-Annexure -30).

Air Pollution Management

The unit has provided common stack of 275m height and FGD systems along with separate ESPs for the Boiler I and Boiler II. During the time of inspection on 02.11.2023 two boilers were in operation and it was noticed that the value of SO_2 for unit 1 was 175.70 mg/Nm^3 and for the unit 2 was 166.19 mg/Nm^3 . The unit has provided online continuous stack emission monitoring systems for the parameters PM, SO_2 and NO_x and connected the same to CAC, TNPCB, Chennai. The unit has provided 6 Nos of CAAQM stations for PM_{10} , $\text{PM}_{2.5}$, SO_2 , NO_x and CO and connected to CAC, TNPCB, Chennai. The unit has provided water sprinklers in coal handling area, coal stock yard and bag filters at coal transfer points as APC measures. In coal stock yard, the unit has provided wind barriers of 15 m height all around to prevent fugitive emission. Consolidated ROA of the stack emission survey in the year 2018-2023 (5years) all the parameters were within the standards prescribed by the Board except the exceedance of- PM_{10} (9/21).(Consolidated ROA-Annexure- 31).

Consolidated ROA of the AAQ monitoring survey in the year 2018-2023 (5 years) reveals that all the parameters are within the standards prescribed by the Board except the exceedance of PM_{10} (4/10) range of 108-116 $\mu\text{g}/\text{m}^3$, $\text{PM}_{2.5}$ (5/10) range of 62-82 $\mu\text{g}/\text{m}^3$ (Consolidated ROA- Annexure 32).

Fly Ash Management

The fly ash, bottom ash and gypsum are disposed to cement factories. The pond ash accumulated is being disposed to road project (Vikravandi to Nagapattinam - NH 45) carried out by M/s. Oriental Structural Engineers Limited as when required.

IL&FS Tamil Nadu Power Company Limited		
Generation	Total Ash (Dry Fly Ash + Bottom Ash) in Tons	57650.76
	Total Dry Fly Ash in Tons	53236.42
	Total Bottom Ash in Tons	4414.34

Utilization	Total Dry Fly Ash in Tons	53236.42
	Total Bottom Ash in Tons	4414.34
	% of Total Ash Utilization	100 %

Hazardous Waste Management

The unit has obtained authorization under Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016 vide Board's proc. dated 30.11.2021 with validity upto 31.03.2026

Green Belt Development

The unit has developed around 3,30,219 Nos of trees till December 2022 in 262.30 acres. The unit authorities informed that during the year 2022-2023 around 10000 Numbers of Casuarina trees are developed in the coal storage area and also east and south side of the ash pond. Also, 2785 trees were planted in 7.5 acres.

8.0 Comparative Study on "Report of Analysis of the samples collected by the committee based on the locations mentioned in the article POWERing Pollution"

In the article, it was reported that a comprehensive assessment was carried out in both Neyveli and Parangipettai regions. Samples of ground and surface water, as well as soil were collected from 31 locations to assess the water and soil quality of the area. It was reported in the article that the sampling results reveal that there is extensive pollution of local water/ soil resources and several of the drinking water sources were found seriously contaminated with high levels of Mercury, Selenium and Fluoride etc. However, for these 31 locations the geotagged and actual test reports are not included anywhere. Additionally, the article also pointed out that several surface as well as ground water sources were found to have high levels of turbidity, hardness, Total Dissolved Solids (TDS), Total Suspended Solids (TSS), Oil and Grease, High Chemical Oxygen Demand (COD) and presence of elements like Aluminum, Boron, Fluoride, Iron, Manganese, Magnesium, Mercury and Selenium in high concentration. These are qualitative remarks without providing the actual test values comparing against the applicable standards.

In the POWERing Pollution report, additionally it is reported that the sample

taken from the bore well at Tholkappiar Nagar, Vadakuvellur (Location R2-S8) has been contaminated with high level of mercury and around 250 times higher than the limit. The said location (R2 S8) has no coordinates as well as actual test result for mercury against WHO Norm or BIS Norm or any other international Norms. Also, it was reported that Karikuppam and Pudukuppam village near Parangipettai has been contaminated with heavy pollution in drinking and domestic water sources.

According to the article on Powering Pollution, study of soil samples found contamination with high amounts of nickel, zinc, copper, chromium, and selenium as well as low pH. It was also reported that, out of 31 locations tested, 17 locations were found to be seriously contaminated and 11 locations were significantly contaminated. The criteria for "Serious contamination", "Significant contamination", "Some Contamination" and "No Contamination" is not stated against applicable reference standards to *classify the sites* as above.

Also, in this report Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health was taken as reference without declaring the norms. This TNPCB Committee has also decided to consider the Dutch standards which is usually applied in environmental due diligence study in the Indian context due to the non availability of any contamination assessment standards currently in India. Hence, the Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health as well as Guidelines of Dutch Ministry Of Housing, Planning and Environment; soil and ground water standards (2010 version) was taken as reference and the results of soil sample were compared with both standards since the study mainly focused on environmental concern.

The Committee has inspected Study area in detail and collected four rounds of sampling, comprising of ground water, surface water and soil. Also, the samples from the discharges of all treated effluent/ storm water /seepage water etc from the study area were collected wherever the discharges were noticed. All the samples were collected in different days and analysis was done in CUBE Environmental Laboratory, IIT Madras.

Date of inspection	Ground Water samples	Surface Water samples	Effluent samples discharged outside the unit's campus	Soil Samples	Total
11.08.2023	5	9	4	2	20
16.08.2023	5	11	1	2	19
28.09.2023	4	1	1	2	8
31.10.2023 & 1.11.2023	0	1	1	2	4
Total	14	22	7	8	51

The inference of the sample collected by the TNPCB's committee is given below:

Ground Water Samples:

- The analysis done by the TNPCB committee shows that except for nickel concentration in a few sites (Vanathirayapuram, Jawahar College and Umangalam), all parameters are within the drinking water standard limit as per IS 10500:2012. The analysis also reveals that the samples are free from heavy metal concentrations such as mercury, aluminum, boron, fluoride, iron, manganese, and selenium. The test report also reveals that the mercury level is below 0.001 mg/l which is the Limit of quantification.
- The POWERing Report claims presence of mercury at Tholkappiar Nagar and Vadakuvellur locations as 250 times the norm whereas the committee's test report done twice indicate only below 0.001 mg/l which is the Limit of quantification.
- Similarly, ground water collected from Karikuppam and Pudukuppam village shows all the parameters are within the drinking water standard limit as per IS 10500:2012.

Surface Water samples: All the parameters are within the limit as per IS: 2296:1982 standard and also TNPCB standards (Class E – Water for irrigation, industrial cooling and controlled waste disposal) and consider as fit for irrigation.

The committee has also given importance to the Walaja Lake, which is the confluence of several streams which is a significant irrigation source in this area. The results show that the surface water parameters are within standard limits as per IS: 2296 and free of heavy metal contamination, which is reported as polluted in the

article of powering pollution report (Inference report enclosed as Annexure 33).

Effluent samples: All the parameters are within the limit as per IS: 2296 standard and also TNPCB standards (Class E – Water for irrigation, industrial cooling and controlled waste disposal) and found to be fit for irrigation. (Inference report enclosed as Annexure 33)

Soil samples: Soil samples were compared with Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health and Dutch 'T' Value and Dutch "I" value/indicative level of serious contamination (mg/ Kg DS) 2010 version.

- The TNPCB's Committee results reveal that, there is no heavy metal contamination observed in the mentioned locations and the elements of Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury and selenium are within the prescribed standard limit ***except the place of Vadakkuvellur, where in some exceeded level were observed with respect to the Zinc and Nickel concentration***
- The level of Boron in the Karikuppam village is <0.5 mg/kg as per the TNPCB committee's report (The powering report claims that this location as seriously contaminated for Boron and there is no reference standard including Canadian standard for drawing such conclusion).
- All the soil samples are also in optimum range of pH as per the TNPCB committee's report.

Further, Soil Samples were also collected in the confluence point of the discharge of effluent from M/s. NLC India Ltd to study the contamination if any in the Soil. (i.e) The soil samples were collected from Walajah tank embankment and Paravanar River Bank, which reflect historical status of soil contamination if any. The ROA of the soil samples reveals the following observations;

- Exceedance of Nickel concentration (86.6 /45.0 mg/Kg) in soil sample of Paravanar river bank when compared with the Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health and also there is marginal increase of Nickel concentration (45.8/45 mg/Kg) in Walajah tank embankment (Consolidated ROA is enclosed as Annexure 33).

9.0 Field Observations made by TNPCB Committee and status of ash dumped site

During inspection of the committee, the committee has collected the samples from the ash pond to ascertain the characteristics of the ash. The results reveal that there is no heavy metal contamination noted in the ash pond when comparison made with Canadian guidelines for the protection of Environmental and human health. Also, the concentrations of Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury and Selenium are within the limit and the noted mercury level is <0.04 mg/kg whereas Canadian standard for mercury in soil is 6.6 mg/Kg.

10.0 Evaluation of Lignite & Coal Samples

The unit of M/s. NLC India Ltd was inspected on 31.10.2023 and 01.11.2023 and samples fly ash and bottom ash were collected from the ash dumped site during the inspection. The details of the location of sample collection are mentioned below.

S.No	Location of Sample collection	Type of sample
1.	M/s. Neyveli New Thermal Power Plant	Composite sample of Lignite collected for 24Hrs
2.	M/s. Neyveli New Thermal Power Plant	Composite sample of Fly Ash collected for 24Hrs
3.	M/s. Neyveli New Thermal Power Plant	Composite sample of Bottom Ash collected for 24Hrs

Composite sample comprising of 250 grams of Lignite, Fly ash and Bottom ash were collected separately every hour for 24Hrs and 2 Kg of each of the composite samples thus collected were sent for analysis. The samples collected were sent to CUBE Environment Laboratory, IIT, Chennai for analysis. The ROA also reveals that mercury is below the level of quantification in all three composite samples.

In addition to that, grab samples of fly ash, bottom ash and Lignite were collected from M/s. NLC India Ltd. Similarly fly ash, bottom ash and coal samples were collected from M/s. IL&FS. The Results of Analysis reveals the following observations:-

- Cadmium, Arsenic and Selenium is found only in the Fly ash sample collected from both Unit.

- The committee results clearly reveals that only Below Level of Quantification of Mercury was observed in all the Lignite, Coal, bottom ash and fly ash samples and the Limit of Quantification is 0.04. However, specific standards are not available for Ash and Ore for further evaluation (Inference report is enclosed as Annexure 34).

11.0 Ambient Air Quality Survey conducted through Mobile Continuous Ambient Air Quality Monitoring Station (MCAAQMS) of TNPCB

The POWERing Pollution report stated that the data on stack emissions of the power plants at Neyveli put out by CEA shows serious violations of the 2015 norms which set the limits for emissions by power plants, also Coal ash and fly ash has been settling on the surroundings.

To assess the current status of the air quality, a ambient air quality survey has been conducted by the TNPCB committee in the surrounding area of Neyveli through Mobile CAAQMS of TNPCB from 07.09.2023 to 25.09.2023 at the specific locations which are covered around 6 Km from the power plant includes Mudhanai, Umangalam, Block 6, Block 8, Gangaikondan, Pettai, Vadalur, Kannuthoppu, Indhiranagar, Mettukuppam, Parvathipuram, Vadalur, Gopalapuram, Kammapuram and Dharmanallur for 24 hours. As per the report on criteria pollutants, it indicates that the parameters includes PM₁₀, PM_{2.5}, SO₂, NO₂, CO, NH₃, Ozone and Benzene are within the limit when compared with National Ambient Air Quality standard (24 Hours) (AAQ Survey report enclosed as Annexure - 35).

In the article POWERing Pollution, it is reported that the deposition of pollutants like coal dust and fly ash outside/inside their homes mostly brought in by air. The pollution was attributed to ash dump/handling/pipeline, fly ash, coal bunker and stack of the unit TPS of IL & FS, Parangipettai. Therefore, Ambient Air Quality survey was also conducted at the surrounding areas of M/s. IL & FS, Parangipettai by the TNPCB committee through Mobile CAAQMS from 26.09.2023 to 29.09.2023 at Panchankuppam, Vellingarayanpettai and Karikuppam which is nearly 4 km from the power plant. The Report on criteria pollutants shows that all the parameters, PM₁₀, PM_{2.5}, SO₂, NO₂, CO, NH₃, Ozone and Benzene are within the limit when compared with National Ambient Air Quality standard (24 Hours) (AAQ Survey report enclosed as Annexure 35).

12.0 Stack Monitoring Survey conducted at M/S. NLC India Ltd And M/s IL&FS Tamil Nadu Power Company Ltd

To assess the current status of the stack emission, stack monitoring survey has been conducted by the TNPCB committee through M/s. SGS India Private Limited, Ambattur Industrial Estate at M/s. New Neyveli Thermal plant, NLC, Neyveli on 01.11.2023 (without FGD system) and also at M/s. IL&FS Tamil Nadu Power Company Ltd. on 02.11.2023 (with FGD system). The parameters such as PM, SO₂, N₂ with Heavy Metals (Mercury, Nickel, Lead, Zinc, Arsenic, and Selenium & Cadmium) were tested and metals were analysed in particulate phase for complete observation.

The Neyveli New Thermal Power Plant unit has two boilers of 1600 TPH and consented to discharge emission through a 275m stack. The unit has provided continuous online stack monitoring system for parameters SPM, SO₂ and NO_x for each unit and connected the same to CAC, TNPCB, Chennai. To meet the SO_x norms in the stack emission, the unit has started the construction of flue gas desulfurization (FGD) system installation for this unit.

The IL&FS unit has provided a common stack of 275m height and FGD systems along with separate ESPs for Boiler I and Boiler II. The unit has also provided online continuous stack emission monitoring systems for the parameters PM, SO₂ and NO_x and connected the same to Care Air Centre, TNPCB, Chennai.

The report of analysis of both unit was compared with the prescribed emission standards vide Notification No. S.O. 3305 (E) dated 07.12.2015. The results reveals that the parameters SPM, SO₂ and NO_x exceed the limit in the unit M/s Neyveli New Thermal Power Plant of M/s NLC India Ltd and all the parameters are within the limit in the unit with respect to M/s IL&FS Tamil Nadu Power Company Ltd. Also, there is no heavy metal (Mercury, Nickel, Lead, Arsenic, Selenium & Cadmium) contamination was observed in the survey in particulate phase. However, Mercury concentration was observed in heavy metal analysis of gaseous phase in the order of 0.07 mg/Nm³ in M/s.Neyveli New Thermal Power Plant of M/s NLC India Ltd and 0.05 and 0.07 mg/Nm³ in M/s IL&FS Tamil Nadu Power Company Ltd. against the standard of 0.03 mg/Nm³.

Hence, a Stack monitoring survey and analysis of Lignite, Coal, fly ash and bottom ash at a time needs to be carried out by all the units within two months through NABL/MoEF&CC accredited laboratory to analyze the criteria pollutants and heavy metals for further evaluation.

Also, the committee observed that the FGD installation is under construction stage in the unit of M/s NNTPS. FGD installation is under tendering stage in M/s. Neyveli Thermal Power Station I Expansion. M/s Neyveli Thermal Power Station II Expansion is already operating with CFBC boiler with dry lime injection as bed material which controls SO₂ emission certain level. As regards to the M/s. Neyveli Thermal Power Station II since the power purchase agreement will end in the year 2028-2029, the management has not firmed up the implementation plan for FGD. Further, M/s. TAQA Tamil Nadu Power Company Limited has not taken any concrete steps to implement the installation of FGD (AAQ Survey report enclosed as Annexure 36).

13.0 Comparative Study on “Report of analysis of the sample collected by the committee with respect to the baseline data available in the previous reports”

During the committee’s visit on 29.08.2023, the committee members have decided to collect the samples from the locations in which previous EIA study was carried out. In this regard, the committee has collected 38 numbers of samples around NLC and its surrounding areas, comprising 27 numbers of ground water which includes Tube well, Dug well, 7 numbers of surface water, 4 numbers of soil to study the changes in the quality if any and analysis were done in CUBE Environmental Laboratory, IIT Madras Research Park, Chennai – 600 113.

In this connection, baseline data available in the EC compliance report – 2003 -2015, Bureau Veritas Report- 2022 and Environmental Impact Assessment Report- 2018 for NLC Thermal power plants and NLC Mines were used to compare the current status of water and soil quality with those available base line data. Also, drinking water standard limits (IS 10500:2012) were used to evaluate the quality of ground water to determine whether these sources were suitable for drinking.

It is submitted that, when compared to the available baseline data, the analysis report reveals that there is not much difference in the aforementioned

investigated parameters. Also, most of the parameters are within the drinking water standard limit as per IS 10500:2012 except Total Hardness in some of the locations. Totally 11 out of 27 ground water samples are over the limit of 200 in hardness value. However, it is observed that the samples are free of heavy metal contamination.

During the committee inspection, the villagers informed that some of the well water had not been utilized for drinking and it is being utilized for public use. All available data were compared with committee's sample analysis report to determine the status of the quality of both water and soil samples. Since, the baseline data that is used for compilation of the report were done at different seasons in different years by NLC, they are not directly taken for comparison statement. However, for future investigations to track the characteristics of the samples, the committee has given the sampling locations with latitude/longitude for collection of samples at regular intervals.

In addition to the above, the surface water samples were collected around NLC has been compared with TNPCB Standards for discharge of treated trade effluent on land for irrigation and also with Water Quality Standards as per IS: 2296 (Class E – Water for irrigation, industrial cooling and controlled waste disposal) to check the suitability of water for irrigation purpose. The results reveal that the parameters are within the prescribed standard and there is no much variation between the available baseline data and committee's sample analysis report. Also, the report of analysis of soil samples collected from NLC surrounding were evaluated with available baseline data and compared with Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, since the study mainly focused on environmental concern. The results reveal that, there is no heavy metal contamination observed in the mentioned locations as per the TNPCB committee's report and Baseline data. The elements of Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury and selenium are within the prescribed standard limit (Consolidated ROA is enclosed as Annexure 37).

14.0 TNPCB Committee's point wise remarks on the article: powering pollution

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
Water & Soil Pollution		
1	<p><u>Page-13, Para-1:</u> In both areas - Neyveli and Parangipettai, water and soil samples were collected and water samples were tested for basic parameters like pH, TDS, alkalinity, TSS etc. as well as for heavy metals, and some of the samples were tested for COD and oil and grease; whereas soil samples were tested for 12 parameters as per the Soil Health Card and for heavy metals. While individual parameters were assessed against the relevant standards, broad thumb-rule criteria has used based on which parameters are exceeding limits, the extent of the exceedance etc. to classify sites into Seriously Contaminated, Significantly Contaminated, Some Contamination and No Contamination.</p>	<ul style="list-style-type: none"> • To assess the status of water and soil quality, TNPCB Committee has done inspection in Neyveli, Parangipettai and the surrounding areas. Water and soil samples were collected in the respective locations and analysis were done in CUBE Environmental Laboratory, IIT Madras Research Park, Chennai – 600 113. • The Consolidated Report of Analysis of the soil and water samples reveals that all the parameters are within the limit as per standard and overall there is no such kind of serious contaminations observed in both soil and water. (Report of Analysis are enclosed for soil and water)
2	<p><u>Page-26, Para-3:</u> A study done in 2005 titled “Heavy Metal Pollution Assessment in Surface Water Bodies and its Suitability for Irrigation around the Neyveli Lignite Mines and Associated Industrial Complex, Tamil Nadu, India” found high concentrations of heavy metals in the surface water from a range of 2 to</p>	<ul style="list-style-type: none"> • The Consolidated ROA of the ground water samples reveals that all the parameters are within the standards as per IS 10500/2012 except for nickel concentration in a few sites. • The Consolidated Report of Analysis of the surface water

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
	<p>1200 times higher than average concentrations in river water worldwide. This was attributed to discharge of untreated mine water, fly ash pond water and effluents from associated industries. The surface water bodies were in use for bathing, washing, and irrigation which may have led to deterioration of soils, surface water, and groundwater. The heavy metal analysis of mine water, fly ash pond and industrial effluents and the natural reservoirs revealed higher concentrations of Cobalt, Chromium, and Mercury than the recommended irrigation water quality standards.</p> <p>The study reports that higher concentrations of these heavy metals lead to their accumulation in soils and enter the food chain, leading to serious health hazards.</p>	<p>samples reveals that all the parameters are within the limit as per on land irrigation standard prescribed by the TNPCB and Water Quality Standard IS: 2296 (Class E – Water for irrigation, industrial cooling and controlled waste disposal).</p>
5	<p><u>Page-44, Para-1:</u> The findings of the lab analysis of the samples reveal a very worrying picture. There is some extensive pollution of local water and soil resources has observed. For several effluent discharge streams coming from mines and the TPSs, the analysis shows critical parameters exceeding legally binding limits,</p>	<ul style="list-style-type: none"> • All the analysis parameters of the soil and water has been evaluated with respect to the standards. • The analysis reveals that the samples are free from heavy metal concentrations such as mercury, aluminium, boron, fluoride, iron, manganese, and selenium.

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
	indicating that not only are these effluents polluting local water and land resources, but they are also in clear violation of the law, requiring immediate legal action. It is a major cause of concern is that several of the drinking water sources are also seriously contaminated with high levels of Mercury, Selenium, Fluoride etc.	
Drinking and Domestic Water Use Sources		
6	<u>Page-47, Para-1:</u> The locations from where water was being directly used for drinking and domestic use, namely, the borewell at Tholkappiar Nagar, Vadakuvellur (Location R2-S8), water was found to be seriously contaminated with high turbidity, Selenium and Mercury. Mercury was very high, around 250 times the limit. There are many kidney patients, people affected with lung disease, cancer patients and people with skin disease among the community in Tholkappiar nagar.	<ul style="list-style-type: none"> • The Consolidated Report of Analysis of the mentioned location Tholkappiar Nagar and Vadakuvellur ground water samples reveals that all the parameters are within the limit as per IS:10500:2012 • The noted Mercury levels are <0.001/0.001 in both Tholkappiar Nagar and Vadakuvellur. • TPS II Expansion has initiated Health Survey through M/s Annamalai University and the study is ongoing process anticipated to be completed within a year.
7	<u>Page-48, Para-2:</u> In 5 numbers of locations from where water was being directly used for drinking and domestic use, One of these was a	<ul style="list-style-type: none"> • As per powering report, the location 15 is mentioned as far away from the mining and TPS area and it is not identifiable.

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
	control point location (Location 15) far away from the mining and TPS area, and this showed virtually no contamination. Bore well at Aadhandar kollai near Thiravupathi Amman temple (R1-L12) was found to be seriously contaminated with high turbidity, hardness, TDS, Fluoride, Iron, Calcium and Manganese. This is a hand pump close to the ash pond and people confirmed that they have been using it for drinking purposes.	<ul style="list-style-type: none"> The Consolidated Report of Analysis of the mentioned location Aadhandar kollai ground water samples reveals that the parameters are within the limit as per IS 10500/2012 except Lead. The observed lead concentration is 0.011 mg/L as against std of 0.01mg/L. But the elements like Aluminium, Boron, Fluoride, Iron, Manganese, Magnesium, Mercury and Selenium are within the limit.
8	<u>Page-48, Para-4:</u> The dug well at Vaanadhirayapuram Village (R1-L14), about 100 meters from the Mine 1A showed high levels of Silicon and Boron. Local people have been complaining about the quality of this water.	<ul style="list-style-type: none"> The Consolidated Report of Analysis of the mentioned location Vaanadhirayapuram Village bore well sample reveals the parameters of pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Arsenic, Chromium, Mercury, Selenium, Boron, Calcium, Magnesium, Sulphide, Total Alkalinity, Sodium, Potassium, BOD & COD, Total Hardness as CaCo3, Manganese, Aluminium, Iron are within the limit. But Nickel (0.206 mg/L as against std 0.02 mg/L) and Lead (0.020 mg/L as against std 0.01 mg/L) are slightly higher than the standard IS: 10500:2012.
9	<u>Page-48, Para-5:</u> The piped water supply close to this same location was also tested, as R1-L17, which is piped drinking water supplied by NLC	<ul style="list-style-type: none"> The Report of Analysis reveals that all the parameters are within the limit of prescribed standards except Nickel (0.108 mg/L as against std

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
	management. The water was found to be contaminated with Aluminium exceeding the limits. People have complaints about skin diseases and kidney problems. It is likely that the health issues may be due to the combined impact of problems with water quality and other pollution like coal dust, etc as location is close to the mine.	<p>0.02 mg/L) which is slightly higher than the standards IS: 10500:2012.</p> <ul style="list-style-type: none"> As per the Report of Analysis, it was observed that there is no aluminium contamination in the water.
10	<u>Page-48, Para-6:</u> The bore well at Vellankulam (R1-L18) was also found to be contaminated with high levels of Zinc and the site classified as significantly contaminated site. People who use this water for drinking have been complaining about kidney ailments.	<ul style="list-style-type: none"> As per Report of Analysis, all the parameters are within the limit of prescribed standards except Nickel (0.044 mg/L as agents std 0.02 mg/L) which is slightly higher than the standards. But, the Report of Analysis indicates that the zinc concentration is under the limit as per IS:10500:2012.
Effluent Discharges		
11	<u>Page-48, Para-8:</u> Effluents at three locations like R1-L1: Neyveli PCS store discharge, R1-L2: Discharge from NNTPS and R1-L4: Direct discharge from Neyveli TPS I coming from the power plants, were dark black and oily, and in all three cases, exceeded the limits for TSS, Oil and Grease and COD, violating legally	<ul style="list-style-type: none"> The Committee has collected effluent samples from Storm Water on 16.08.2023. Mainly water sample from TPS I Expansion effluent outlet at the boundary of the plant, TPS II Expansion Storm water drain near STP and Junction Tower V, Storm water Drain opposite to TPS I Exp RCC

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
	<p>binding limits.</p> <p>These discharges also had significant presence of heavy metals like Iron, Aluminium, Nickel, Manganese etc.</p>	<p>Bunker, MSTP outflow and Mine I seepage confluence point to kanaiyakoilodai), Mine I A seepage discharge point to Sengulam and Anbarasankulam lake, Mine I seepage lake, Mine I A seepage discharge point to Ayyan lake, Hand pump at Panchayat union Middle school at Karikuppam village.</p> <ul style="list-style-type: none"> The findings of Report of Analysis shows that the parameters are within on land for irrigation standards prescribed by the TNPCB and also it meets the IS: 2296: standard.
12	<p><u>Page-48, Para-9:</u> Effluents at location R1-L5 were a mix of effluents coming out from the power plants and may also contain mine discharges. This was also seriously contaminated with high TSS in violation of limits, and presence of Fluoride, Iron, Magnesium, Silicon, and Aluminium in high concentrations.</p>	<ul style="list-style-type: none"> The findings of Report of Analysis of the point Discharge from Neyveli TPS II shows that the parameters are within on land for irrigation standard prescribed by the TNPCB and Water Quality Standard IS: 2296 (Class E – Water for irrigation, industrial cooling) and fit for irrigation and free of heavy metal contamination. Also, Fluoride, Iron, Magnesium and Aluminium are under the standard levels.
13	<p><u>Page-48, Para-10:</u> Effluent from location R1-L 6, Opposite to Main</p>	<ul style="list-style-type: none"> As per the Report of Analysis of the sample, all the parameters are

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
	<p>Gate of NLC Mine 2, Kootu Kudineer Thittam near Valaiyama Devi carrying discharge of Mine 2 was also violating limits for the TSS and Iron, and had presence of high levels of metals like Calcium, Magnesium, Iron, Chromium, Manganese, Mercury, Aluminium and Nickel. This discharge finally goes to Walajah lake. Most of the people in Kurinjipadi use Walajah lake water for irrigation</p>	<p>within the standards.</p> <ul style="list-style-type: none"> The committee has also collected the samples at Walajah lake. The Report of analysis reveals that all the parameters are within the on land irrigation standard prescribed by the TNPCB and IS: 2296 standards. There is no such kind of heavy metal contamination noted in the location
14	<p><u>Page-48, Para-6:</u> In the second sampling round, the location R2-S10, TPS 2 outlet, Kunankurichi, which was also tested in round one (as R1-L2), confirmed that the serious contamination continues. This time, it violated the legally binding limits for TSS and Mercury, and also showed high levels of Selenium.</p>	<ul style="list-style-type: none"> As per Report of Analysis of the location Discharge from Neyveli TPS II, all the parameters are within the standards.
15	<p><u>Page-48, Para-7:</u> Similarly, in the second round, the location R2-S2, where a mix of effluents coming out from the power plants and possibly also mine discharges come together, which was also tested in round one as R1-L5, confirmed that serious contamination continues. This time, it violated the legally binding limits for Mercury, and also showed high levels of Selenium.</p>	<ul style="list-style-type: none"> As per the Report of Analysis of all the samples, the parameters are within the standards on land irrigation standard prescribed by the TNPCB and IS: 2296 standards.

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
Ambient Water Body, Ambient Water Body Receiving Discharge		
16	<u>Page-49, Para-1:</u> Totally seven locations of ambient surface water bodies were sampled in the first round. Out of these, some are water bodies that may also be receiving effluent discharges directly. All the seven samples were found to be contaminated or seriously contaminated. Even the control point for Surface water (R1-L16) had minor contamination of Aluminium and Iron	<ul style="list-style-type: none"> As per the Report of Analysis all the parameters are within the standards. There is no contamination of Aluminium and Iron was observed.
17	<u>Page-49, Para-5:</u> The stream near Ammeri, Vadaku Vellur (R2-S3) was found to be contaminated with high levels of Selenium. People here use this water for irrigation, and had explicitly mentioned that they had skin problems, and reduced agricultural yield, both of which they attribute to the contamination of this water.	<ul style="list-style-type: none"> As per the Report of Analysis all the parameters are within standards. (The noted Mercury level is only <0.001/0.001).
18	<u>Page-49, Para-6:</u> The discharge from the NNTPS outlet near Throupathi Ammeri (R2-S5) is seriously contaminated, with low pH (acidic) and high turbidity, Mercury, Selenium, Magnesium and Calcium. Water from there is used for irrigation by Melakuppam, Ammeri, Thoppilikuppam, Punangurichi villages.	<ul style="list-style-type: none"> As per the Report of Analysis, all the parameters are within standards and optimum level of pH was noted.

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
19	<u>Page-49, Para-7:</u> The water body outside the Central Stores boundary near NLC Thermal 1 EXP and NNTPS (R2-S6), is seriously contaminated with very high levels of TSS, Mercury, Selenium, Calcium and Magnesium. Ash is also dumped near this location and this could be a reason for the high Mercury and Selenium, apart from contaminants picked up from within plant premises.	<ul style="list-style-type: none"> As per the Report of Analysis all the parameters are within standards and there is no serious contamination was noted with the levels of TSS, Mercury, Selenium, Calcium and Magnesium.
Agriculture Fields – Soil Samples		
20	<u>Page-49, Para-2:</u> Location R1-L9, a paddy field within one kilometer from the stack of NNTPS, was found to have high levels of Nickel, Zinc and Copper. Ash is being deposited on the soil and crops in the field and this could be the source of the metal contaminating the soil.	<ul style="list-style-type: none"> As per the report of analysis, it is observed all the parameters are within the limit of standard, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health. Also, there is no heavy metal contamination observed in the mentioned locations as per the TNPCB committee's report.
21	<u>Page-49, Para-3:</u> Location R1-L11, agricultural land near Iyyan Lake was also found to be seriously contaminated, with low pH, and high levels of Chromium. Local people informed the team that the water used for irrigating the field is coming from the mines.	<ul style="list-style-type: none"> As per the report of analysis, it is observed all the parameters are within the standard limit. Especially the elements of Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury and selenium are within the prescribed standard limit

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
22	<p><u>Page-49, Para-6:</u> The field near Vadakuvellur Bypass (R2-L11) had soils with low pH and seriously contaminated with high Selenium. Local people informed the team that lignite washed water from TPS 1 has resulted in no yield from the fields. Impact on yield may be due to Selenium and source of Selenium could be lignite washed water. Also, ash is being deposited on the fields and this may be a source of Selenium and also an additional cause of yield failure.</p>	<ul style="list-style-type: none"> • Committee have collected and tested a 24 hourly basis composite samples of Lignite, fly ash and bottom ash and the ROA reveals that there is no Selenium contamination • As per the report of analysis, it was observed that the soil has not been contaminated with Selenium when compared with Canadian soil Quality Guidelines for the protection of Environmental and Human Health.
Air Pollution from NLC		
	<p><u>Page-25, Para-3:</u> The data on stack emissions of the power plants at Neyveli put out by CEA shows serious violations of the 2015 Norms which set the limits for emissions by power plants. For e.g., the report for February 2023 shows that all the 7 units of Neyveli TPS II (all 210 MW units) exceeded the SO₂ emission limits by 5-6 times, with even the minimum emission for several units being above the permissible limit.</p> <p>Even the Neyveli New TPS exceeded the limits for PM, SO₂ and NO_x in the same month.</p>	<ul style="list-style-type: none"> • The unit M/s. NLC India Limited TPS II has provided seven stacks along with electrostatic precipitator (ESP) for the boilers. The management has not firmed up the installation of FGD. • The unit has provided continuous online stack monitoring system for parameters SPM SO₂ and NO_x for each unit and connected the same to CAC, TNPCB, Chennai. • The Consolidated Report of Analysis of the Stack emission survey in the year 2018-2023 reveals that PM(4/10) NO_x (4/10)

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
		<p>and SO_x (10/10) (Consolidated ROA Enclosed).</p> <ul style="list-style-type: none"> • TPS II Consolidated Report of Analysis of the AAQ survey in the year 2018-2023 reveals that all the parameters are within the standards prescribed by the Board except the exceedance of PM₁₀ (6/10) PM_{2.5} (5/10) SO_x (4/10) and NO_x (4/10). (Consolidated ROA Enclosed). • The unit M/s. New Neyveli Thermal Power Station unit has common stack along with Electro Static Precipitator for the boilers. • The unit has provided continuous online stack monitoring system for parameters SPM, SO₂ and NO_x, for each unit and connected the same to Care Air Centre, TNPCB, Chennai. • The unit has started the construction activity on 31.01.2022 for Flue Gas Desulphurisation system and planned to complete before 31.12.2026. • Report of Analysis of the Stack emission survey in the year 2020-2023 reveals that the following parameters are exceeded the

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
		<p>standards PM (5/6), SOX (6/6) and NOx (6/6). (Consolidated ROA Enclosed).</p> <ul style="list-style-type: none"> • Report of Analysis of the AAQ survey in the year 2020-2021, 2021 - 2022 and 2022-2023 reveals that all the parameters are within the standards prescribed by the Board except the exceedance of - PM₁₀ (2/6). (Consolidated ROA Enclosed). • TNPCB has directed the NLCIL to install Continuous Ambient Air Quality Monitoring System (CAAQMS). • Based on that, NLCIL have installed six CAAQMS in and around the units of NLCIL and connected to TNPCB Care Air Centre. Installation of two additional CAAQMS is in progress. • NCLIL has provided LED display boards at prominent places and entrances of the units and displaying the environmental monitoring data to the public. • In addition, the committee conducted stack monitoring survey at M/s NNTPS for the parameters SPM, SO₂ and NOx, and heavy

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
		<p>metals in particulate phase for complete evaluation. The results reveals that the parameters SPM, SO₂ and NO_x are exceed the limit. However, Mercury concentration was observed in heavy metal analysis of gaseous phase is 0.07 mg/Nm³ which is against the standard of 0.03 mg/Nm³.</p>
	<p><u>Page-25, Para-4:</u> SO₂ emissions from TPS 1 EXP roughly range between 500 - 5000 mg/Nm³ between the same period.</p>	<ul style="list-style-type: none"> • The TPS-I EXP unit has provided a common stack along with ESP for the boilers. • To meet the SO_x norms in the stack emission, the installation of FGD is in tendering stage. • The unit has provided continuous online stack monitoring system for the parameters includes SPM, SO₂ and NO_x for each unit and connected the same to CAC, TNPCB, Chennai. • ROA of the Stack emission survey in the year 2018-2023 reveals that PM (2/10), NO_x (1/10) 618 mg/Nm³ and SO_x (7/10). (Consolidated ROA Enclosed). • Additionally, to know the current status of air quality, Ambient air quality survey has been conducted by the TNPCB committee in the

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
		<p>surrounding area of Neyveli through Mobile Van CAAQMS of Tamil Nadu Pollution Control Board from 07.09.2023 to 25.09.2023 at Mudhanai, Umangalam, Block 6, Block 8, GangaiKondan, Pettai, Vadalur, Kannuthoppu, Indhiranagar, Mettukuppam, Parvathipuram, vadalur, Gopalapuram, Kammapuram and Dharmanallur. The Report on Criteria Pollutants clearly shows that all the parameters, PM10, PM2.5, SO2, NO2, CO, NH3, Ozone and Benzene are within the limit when compared with National Ambient Air Quality standard (24 Hours).</p>
ITPCL		
23	<p><u>Page-65, Para-5&6:</u> People reported deposition of pollutants like coal dust and fly ash outside/inside their homes mostly brought in by air. The pollution was attributed to ash dump/handling/pipeline, fly ash, coal bunker and stack of the ITPCL TPS. Respiratory and skin related issues are common among the people due to pollution. These issues have largely been faced since the operationalization of the ITPCL TPS.</p>	<ul style="list-style-type: none"> • The unit has provided the required Air Pollution Control Measures for coal handing plant. The unit has provided wind barrier around the coal yard for 15 meters height and Cloth nets augmenting and super imposing the perforated metal sheets on Eastern side along the wind barrier. • Additionally, the unit has also planted Casuarina Trees all along

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
	<p>Complaints have been made to the TPS authority/District authority against this pollution, but no steps have been taken by authorities to mitigate the pollution. People also reported not having an adequate green belt around the TPS/ash pond/conveyer.</p> <p>The dust related issues appear to be in violation of the EC condition that mandates adequate dust extraction systems such as cyclones/bag filters and water spray systems in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas to control dust pollution.</p>	<p>the wind barrier as a secondary barrier to control the coal dust.</p> <ul style="list-style-type: none"> • Additional Cloth Nets provided behind Track hopper on eastern side where the villages. • Water sprinklers are installed around the coal storage yard. • Dust suppression system and Dust extraction systems are operated and maintained in good working condition in Coal Conveyors, Transfer towers, Ash handling plant and other areas. • Coal conveyed using closed loop from Track hopper to Coal yard and till bunkers. • High Pressure Air Seal is available in Coal mills to avoid coal dust in milling operations. • The unit has provided common stack of 275m height and FGD systems along with separate ESPs for the Boiler I and Boiler II. • The unit has provided online continuous stack emission monitoring systems for the parameters PM, SO₂ and NO_x and connected the same to Care Air Centre, TNPCB, Chennai.

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
		<ul style="list-style-type: none"> • The unit has provided 6 Nos of CAAQM stations for PM₁₀, PM_{2.5}, SO₂, NO_x and CO and connected to Care Air Centre, TNPCB, Chennai. • Consolidated ROA of the stack emission survey in the year 2018-2023 (5 years) all the parameters are within the standards prescribed by the Board except the exceedance of - PM₁₀ (9/21). • Consolidated ROA of the AAQ monitoring survey in the year 2018-2023 (5 years) reveals that all the parameters are within the standards prescribed by the Board except the exceedance of - PM₁₀ (4/10) range of 108-116 µg/m³, PM_{2.5} (5/10) range of 62-82 µg/m³.
		<ul style="list-style-type: none"> • Additionally, to know the current status of air quality, Ambient air quality survey was conducted by the TNPCB committee in the surrounding areas of Parangipettai through Mobile CAAQMS of Tamil Nadu Pollution Control Board from 26.09.2023 to 29.09.2023 at Panchankuppam, Vellingarayanpettai and Karikuppam which is nearly 3 km from the power plant. The Report

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
		<p>on Criteria Pollutants clearly shows that all the parameters, PM₁₀, PM_{2.5}, SO₂, NO₂, CO, NH₃, Ozone and Benzene are within the limit when compared with National Ambient Air Quality standard (24 Hours).</p> <ul style="list-style-type: none"> In addition, the committee conducted stack monitoring survey for the parameters SPM, SO₂ and NO_x, and heavy metals in particulate phase for complete evaluation. The results reveals that all the parameter are within the limit. However, Mercury concentration was observed in heavy metal analysis of gaseous phase is 0.05 and 0.07 mg/Nm³ in M/s IL&FS Tamil Nadu Power Company Ltd, against the standard of 0.03 mg/Nm³.
Drinking and Domestic Water Use Sources		
24	<p><u>Page-69, Para-1:</u> The water from the bore well at Pudukuppam Village, close to the ITPCL power plant (R1-L21) was found to be contaminated with hardness, alkalinity and TDS exceeding the limits. Other parameters were found within limits. During the visit, local people had said</p>	<ul style="list-style-type: none"> As per the Report of Analysis all the parameters are within limit as per standard and there is no contamination found with hardness, alkalinity and TDS.

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
	<p>that the groundwater has been contaminated since the plant came up. They have stopped drinking groundwater, due to contamination, and are now buying water for cooking and drinking water. The hardness, TDS and alkalinity shown in the test may be a factor making it unsuitable for drinking and cooking. Regular testing from time to time would be useful here.</p>	
25	<p><u>Page-69, Para-2:</u> The same village, Pudukuppam also has piped water supply that brings water from Neyveli. We tested this water (R1-L22) and found it was only mildly contaminated with a high value of hardness. The local people said that they get piped water from Neyveli 2 days a week but it's not too good for drinking. Also, it is unreliable. Testing shows it to be hard water, Regular testing from time to time would be useful here.</p>	<ul style="list-style-type: none"> As per the Report of Analysis, the ground water taken from Pudukuppam village is considered as safe for drinking and all the parameters are within the limit as per IS 10500:2012.
26	<p><u>Page-69, Para-3:</u> The water from the bore well at Karikuppam Village (R1-L26), also close to the ITPCL power plant, however was found to be seriously contaminated with turbidity, hardness, alkalinity, TDS, Fluoride, Iron, Calcium, Magnesium and Silicon all exceeding the limits. This water is being used by the people for</p>	<ul style="list-style-type: none"> As per the Report of Analysis, the ground water collected from Karikuppam village, all the parameters are within the limit as per IS 10500:2012

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
	drinking and domestic use and it is likely to have serious impacts on their health.	
Surface Water		
27	<u>Page-69, Para-4:</u> The water from the Karikuppam Village Fish Pond (R1-L23) was found to be seriously contaminated, with turbidity, hardness, alkalinity, TDS, Iron, Fluoride, Magnesium and Calcium exceeding the limits. Now, the people have stopped using the water from this pond for drinking due to its bad quality, but continue to use it for washing, bathing, fishing, etc.	<ul style="list-style-type: none"> As per the Report of Analysis, all the parameters include pH, Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD are within the limit. There is no serious contamination has been found in the location as per on land irrigation standard prescribed by the TNPCB and Water Quality Standard IS: 2296:1982 (Class E – Water for irrigation, industrial cooling and controlled waste disposal).
28	<u>Page-69, Para-5:</u> Water sample has also collected from a canal near the ITPCL Thermal Power Plant (where water is discharged from the plant from time to time) (R1-L25). This was found to be contaminated with turbidity, high hardness, chlorides, Iron, Fluoride, Magnesium and Boron. The water from this canal comes from upstream but water from ITPCL TPS is discharged into this canal from time to time. It appears	<ul style="list-style-type: none"> As per CTO ITPCL is permitted to discharge the entire treated effluent to the marine outfall only. Only the storm water is permitted to be discharged into the Buckingham canal constructed a strong reservoir with automatic level control pump as and when it rains. During the time of inspection by the Committee, there was no such kind of discharges observed

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
	<p>that this is mostly storm water discharge but local people have reported fish kills during the ITPCL discharges. Ideally, water should be tested on the occasion when the power plant water is discharged into this canal to test for any contamination from TPS. At the time of testing, there was no discharge from TPS.</p>	<p>in the canal.</p> <ul style="list-style-type: none"> As per the Report of Analysis, all the parameters are within limit as per on land irrigation standard prescribed by the TNPCB and Water Quality Standard IS: 2296:1982 (Class E – Water for irrigation, industrial cooling and controlled waste disposal) in the location i.e. Buckingham Canal near the Thermal Power Plant.
Soil Samples		
29	<p><u>Page-69, Para-6:</u> Lastly, we also collected a soil sample from a farm in Karikuppam Village (R1-L24). This was found to be seriously contaminated and soil was high in Boron -with concentrations 30 times the screening levels for agriculture, and low in Organic Carbon. The locals reported that “The farm is affected due to the thermal power plant. Paddy does not survive”. Coal dust is also coming on the crops. They also showed banana leaves and coconut leaves which are full of coal dust, the leaves were fully black in colour. They said that paddy does not survive after one month of sowing. So, people have stopped</p>	<ul style="list-style-type: none"> As per the report of analysis, it is observed that all the parameters are within the limit as per Canadian soil Quality Guidelines for the protection of Environmental and Human Health.

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
	farming. Most of the people changed their occupation and turned in to labourers. It is possible that the Boron may be coming from the coal dust/fly ash as this is known to be a source of Boron	
Experiences of the Impacted Communities		
	<u>Page-12, Para-2:</u> These include worsening of water quality over the years; groundwater depletion; fly ash laden water from NLC plants getting mixed with streams used for irrigation and other uses; coal dust and fly ash settling on fields; reduced quantity and quality of agricultural yield; reduced milk yield from cattle; prevalence of kidney, skin and respiratory diseases; increased occurrence of diseases due to fly ash from TPS, coal dust from mines, mixing of fly ash with water and NLC discharges polluting water; difficulty in access to treatment due to the cost of treatment and distance from medical facilities	<ul style="list-style-type: none"> • The Committee has inspected the complaint prone areas and had collected the water samples. • As per the Report of Analysis, all the parameters observed in the soil and water samples are within limit prescribed by the standards
Field Observations of the Study Team		
	<u>Page-14, Para-2:</u> Several streams in the area are massively polluted. They are dark in colour, have a foul odour and carry oil and grease. Many	<ul style="list-style-type: none"> • During the time of inspection by the Committee, there is no such kind of discharges observed in the streams.

S. No	Issues reported in POWERing Pollution	Remarks of the TNPCB committee
	streams carry ash and effluent discharges from TPSs or mines. These streams then merge into other water streams, or other local water bodies like ponds, thus spreading the pollution extensively over the area, including to ground water.	<ul style="list-style-type: none"> • Samples were collected in all the streams and as per the report of analysis, all the parameters are within limit when compared with on land irrigation standard prescribed by the TNPCB and Water Quality Standard IS: 2296:1982 (Class E – Water for irrigation, industrial cooling and controlled waste disposal).

15.0 Conclusion and Specific Recommendations with respect to the Sample Analysis

Water and Soil

A detailed study has been carried out by the TNPCB committee to determine the status in accordance with the directives of the Hon'ble NGT. The committee inspected the Study area I (M/s NLC INDIA LTD, Neyveli) and Study area II (M/s ILFS LTD, Parangipettai) on 11.08.2023, 16.08.2023, 17.08.2023, 23.08.2023, 29.08.2023, 28.09.2023, 31.10.2023, 01.11.2023 and 02.11.2023 and collected 14 numbers of ground Water samples, 22 numbers of surface Water samples, 7 numbers of Effluent samples and 8 numbers of soil samples. On Comparison of the Report of Analysis of all the samples to specified standards, the overall report shows that there is no contamination of aluminum, boron, fluoride, iron, manganese, magnesium, mercury and selenium was found in the samples.

- The powering report claims presence of 1) mercury at Tholkappiar Nagar locations as 250 times the norm, whereas the committee's test report indicate only below 0.001 mg/l which is the Limit of quantification. 2) The water from the bore well at Karikuppam Village was found to be contaminated with hardness, alkalinity and TDS exceeding the limits and Pudukuppam Village was found to be contaminated with hardness. However, ground water collected from Karikuppam and Pudukuppam village shows all the parameters are within the drinking water

standard limit as per IS 10500:2012.

- Also, the analysis of all the ground water done by the TNPCB committee shows that all the parameters are within the drinking water standard limit as per IS 10500:2012 except for nickel concentration in a few sites include Vanathirayapuram, Jawahar College and Umangalam.
- Hence, the committee has decided to conduct regular monitoring at the following locations such as Vanathirayapuram, Jawahar College and Umangalam at an interval of 1 month for a period of one year to evaluate the trends of contamination. The committee has also identified 27 locations for regular monitoring of ground water, Surface water and soil samples once in 3 months, 6 months and yearly once for future reference and also analyze the trends.
- The committee has also collected the **surface water samples and treated effluent discharges**. The Report of analysis reveals that all the samples are within the on land for irrigation standard prescribed by the TNPCB and IS: 2296 standards. There is no kind of heavy metal contamination noted in the locations.
- The RoA of **Soil samples** reveal that, there is no heavy metal contamination observed in the mentioned locations and the elements of Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury and selenium are within the prescribed standard limit ***except the place of Vadakkuvellur, wherein some exceeded level were observed with respect to the Zinc and Nickel concentration when compare with respect to the Canadian standard, since there is no Soil Standard in India related with environmental concern.***
- The powering report claims that this location as seriously contaminated for Boron level in the Karikuppam village. But, as per TNPCB committee's report the boron level is <0.5 mg/kg.

It is reported in the article of powering pollution that the criteria for "Serious contamination", "Significant contamination", "Some Contamination" and "No Contamination" is not stated against applicable reference standards to *classify the above*.

Additionally, baseline data available in EC compliance report - 2003-2015, Bureau Veritas Report- 2022 and Environmental Impact Assessment Report- 2018 for NLC Thermal power plants and NLC Mines were used to compare the current

status of water and soil quality. Hence, additionally 39 samples of Ground water, Surface water and Soil samples were collected from the locations which already studied in EIA, for complete evaluation. On comparison with the available baseline data, the analysis report reveals that there is not much difference in the investigated parameters.

Air Quality

- To assess the current status of the air quality, **Ambient Air Quality survey** has been conducted by the TNPCB committee in 13 locations of M/s NLC INDIA LTD, Neyveli and 3 locations of M/s ILFS LTD, Parangipettai through Mobile Continuous Ambient Air Quality Monitoring Station.
- The Report on Criteria Pollutants clearly shows that all the parameters, PM10, PM2.5, SO₂, NO₂, CO, NH₃, Ozone and Benzene are within the limit when compared with National Ambient Air Quality standard (24 Hours) in both study areas.
- A **Stack Monitoring survey** was also performed in M/s Neyveli New Thermal Power Plant of M/s NLC India Ltd (Without FGD installation) and M/s IL&FS Tamil Nadu Power Company Ltd (With FGD installation) to study the stack emissions. The parameters such as PM, SO₂, NO₂ with Heavy Metals (Mercury, Nickel, Lead, Zinc, Arsenic, Selenium & Cadmium) were analyzed at particulate phase as well as gaseous phase for complete observation.
- The report of analysis of both unit was compared with the prescribed emission standards vide Notification No. S.O. 3305 (E) dated 07.12.2015.
- The results reveal that the parameters SPM, SO₂ and NO_x exceed the limit in the unit M/s Neyveli New Thermal Power Plant of M/s NLC India Ltd and all the parameters are within the limit in the unit with respect to M/s IL&FS Tamil Nadu Power Company Ltd. Also, there is no heavy metal (Mercury, Nickel, Lead, Arsenic, Selenium & Cadmium) contamination was observed in the result of particulate phase.
- However, Mercury concentration was observed in heavy metal analysis of gaseous phase in the order of 0.07 mg/Nm³ in M/s Neyveli New Thermal Power Plant of M/s NLC India Ltd and 0.05 and 0.07 mg/Nm³ in M/s IL&FS Tamil Nadu Power Company Ltd. against the standard of 0.03 mgNm³.

Ash Quality

- **Lignite, Coal, bottom ash and fly ash samples** were collected from both the study areas and tested to evaluate the components. The committee results reveal that only Below Level of Quantification (0.04) of Mercury was observed in all the Lignite, Coal, bottom ash and fly ash samples and no specific standards are available for Ash and Ore for further evaluation.
- Hence, A Stack monitoring survey and analysis of Lignite, Coal, fly ash and bottom ash at a time needs to be carried out by all the units within two months through NABL/MoEF&CC accredited laboratory to analyze the criteria pollutants and heavy metals for further evaluation.

16.0 Overall Recommendation

SI.No	TNPCB's Committee Technical Recommendations
1	M/s. Neyveli Thermal Power Station I
	i. The Unit shall submit the proposal for decommissioning of the plant as per the draft Environmental guidelines issued by the CPCB July 2021 before the execution of the decommissioning process.
2	M/s. NLC India Limited Thermal Power Station II
	<p>i. The unit has commissioned in the year 1986. The unit is operation for the past 37 years and the unit is planning to retire its operation in the year 2028-2029 as per the power purchase agreement.</p> <p>ii. The unit shall initiate the tendering process immediately for the installation of FGD (Flue Gas Desulphurization) and complete the same on or before 31.12.2027 or otherwise, the unit has to pay the EC as per the MoEF& CC notification dated 05.09.2022.</p> <p>iii. The unit shall dispose the accumulated quantity of 4,204,381 MT ash dumped in the ash pond and the unit shall submit the concrete proposal for disposal of fly ash as per the fly ash notification dt 31.12.2021.</p> <p>iv. The unit shall stop the consumption of ground water quantity of approximately 16, 000 KLD which is being used for DM plant, Instead</p>

	<p>the unit shall utilize the mine water (Mine II) for their process.</p> <p>v. The unit shall improve the existing ETP by adding physio-chemical treatment units in order to reduce the colour present in the treated effluent, which is being discharged into outside the premises for irrigation.</p>
3	M/s. NLC India Limited Thermal Power Station II Expansion
	<p>i. During inspection, heavy deposition of bed materials are noticed in the Boiler operation area and the unit shall immediately install pneumatic conveying system for filling of bed materials in bunkers.</p>
4	M/s.NLC India Limited Thermal Power Station I Expansion
	<p>i. The unit shall switch over to utilize 500 KLD for mine water (Mine I & Mine IA) for boiler make up instead of ground water.</p> <p>ii. The unit shall complete the tendering process and start the construction of the FGD system /shall operate on or before 31.12.2026 as per the MoEF& CC notification dated 05.09.2022 or otherwise , the unit has to pay the EC as per the MoEF& CC notification dated 05.09.2022 beyond the cut off date of the notification if the unit is not commissioned.</p>
5	M/s. Neyveli New Thermal Power Station
	<p>i. During inspection, it was noticed that FGD is under construction and the unit shall complete the installation of the FGD system for both units before 31.12.2026 or otherwise , the unit has to pay the EC as per the MoEF& CC notification dated 05.09.2022 beyond the cut off date of the notification if the unit is not commissioned.</p> <p>ii. The M/s. NLC India Limited has already installed 6 CAAQM Station and the same is connected to CAC(Care Air Centre), TNPCB Chennai. The unit shall expedite the installation of the 2 CAAQM station.</p>
6	M/s.NLC India Limited – Mines
	<p>i. During inspection it was observed that, the most of reclaimed area are</p>

	<p>vacant and adequate green belt not developed. Hence M/s. NLC India Limited shall take necessary steps to develop green belt in the vacant spaces with native species.</p> <p>ii. After completion of the mine life, M/s. NLC India Limited shall carry out the afforestation activities as per the approved mine closure plan. The reclaimed land shall be restored to its original conditions for development of flora, fauna etc.</p> <p>iii. M/s. NLC India Limited shall furnish 'No objection Certificate' from the Regional Director, Central Ground Water Board (CGWB) Chennai when the mining operations interfere with the ground water table.</p> <p>iv. The M/s. NLC India Limited Mine II shall take necessary steps to remove invasive species and develop the green belt with native species</p>
7	M/s. TAQA Neyveli Power Company Private Limited
	<p>i. The unit shall initiate the tendering process immediately for the installation of FGD (Flue Gas Desulphurization) and complete the same on or before 31.12.2026 or otherwise, the unit has to pay the EC as per the MoEF&CC notification dated 05.09.2022.</p> <p>ii. The unit shall dispose the accumulated quantity legacy ash of 188,661 MT ash dumped in the ash pond and the unit shall submit the concrete proposal for disposal of fly ash as per the fly ash notification dt 31.12.2021.</p> <p>iii. The unit shall obtain necessary permission from the M/s NLC India Limited to utilize the mine water for various process consumption and in turn the unit shall stop the consumption of ground water quantity of 21,000 KLD which is being presently used.</p> <p>iv. All the units comply the conditions mentioned in the MoEF& CC for disposal of fly ash as per Fly ash Notification dt 31.12.2021</p>
8.	<p>i. All the thermal plants and Mines have STPs and proper Standard Operating Procedure (SOP) to be developed before outsourcing the</p>

	<p>operation and maintenance of the STPs .</p> <p>ii. Electromagnetic Flow Meter is to be installed both for Green belt usage and for surplus sewage disposal from Modern Common STP (MSTP)</p> <p>iii. M/s. NLC India Limited shall install energy meter in the MSTP to study and assess the performance of the STP</p> <p>iv. M/s. NLC India Limited has to procure one CAQQM mobile van in order to monitor the ambient Air quality in and around the Neyveli area periodically.</p>
9.	M/s. IL& FS Tamil Nadu Power Company Limited
	<p>i. The unit shall take necessary steps to remove invasive species within the industries and develop more green belt in the vacant spaces with native species.</p>
10.	General Recommendations
	<p>(i) Formation of O/o AEE, TNPCB office at NLC India Limited</p> <p>Cuddalore District consists of 10 Taluks with 1. Corporation, 6 Municipalities and 15 Town Panchayats. There are 5 industrial clusters with a total of 847 industries in the District. The District Environmental Engineer office is located at SIPCOT Industrial Complex, Cuddalore. The SIPCOT Chemical Complex and SIDCO Estates are located in Cuddalore and Kurinjipadi Taluks. The SIPCOT industrial complex consists of large scale industries which require frequent monitoring with regular sample collections.</p> <p>Presently the strength of the District Environmental Engineer office is one Assistant Environmental Engineer and one Assistant Engineer. Hence, in order to have an effective and continuous monitoring in the NLC Complex, it is suggested to form an Assistant Environmental Engineer (AEE) office at M/s. NLC India Ltd, (NLCIL), Neyveli for the regular monitoring and the effective implementations of the Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981, Environment Protection Acts 1986 and other rules and regulations made under the Act.</p>

	<p>(ii) Cumulative Environmental Impact Assessment and calculation of carrying capacity</p> <p>M/s. NLC India Limited operates three major open cast lignite mines in the Neyveli region and operates 4 thermal power plants. M/s TAQA Neyveli Power Company Limited is also in operation, which is located nearer to the M/s NLC India Ltd. All are operating within the 10 km radius area, the pollution impact is to be studied. Therefore M/s. NLC India Limited shall carry out a cumulative carrying capacity of environmental impact including heavy metals by considering all the industrial activities through reputed institutes like NEERI, IIT Madras etc.</p>
	<p>(iii) Hydro geological study by NGRI</p> <p>Groundwater pumping by M/s. NLC India Limited has a major impact on the nearby surrounding areas. Assessment of ground water quality in and around the mines by testing suitable number of water samples, development of a dynamic tool, a groundwater flow model, to evaluate the impacts of changes to groundwater table due to withdrawal and recharge on the aquifer hydrologic system. Detailed hydrogeological study shall be conducted by reputed institutes like National Geophysical Research Institute (NGRI) for all the three mines in Neyveli region to investigate the impacts of mining in the Neyveli region.</p>
	<p>(iv) Solid Waste Management</p> <p>During inspection, M/s. NLC India Limited reported that, the town ship has 14100 residences. About 0.8 Kg/day rom which 0.8 kg/day of wet waste and 0.14 kg/Day of dry waste is generated per house. The M/s. NLC India Limited township generates is 13.25 T/Day of solid waste. The NLC India Limited Township is also not having proper Solid Waste management facility. During the Committee inspection inside the M/s. NLC India Limited premises, it is observed that the domestic solid waste collected from the Township has not been properly segregated, treated and disposed of. (Vide Plate No.10)</p> <p>M/s. NLC India Limited shall implement the Zero Garbage system, shall</p>

	<p>obtain authorisation under the Solid Waste Management Rules, 2016 from Tamil Nadu Pollution Control Board and dispose of the solid waste in accordance with the Rules.</p> <p>Further, to manage all the environmental related activities in the township, NLC India Limited must appoint a dedicated environmental engineer to monitor the water use, wastewater treatment, solid waste management, and plastics management etc. in the residential and commercial areas of Neyveli Township.</p>
	<p>(v) Plastic Waste Management</p> <p>TN Government has announced, ban on 'one time use and throwaway plastics', irrespective of thickness, such as plastic carry bags, plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups and plastic tumbler, water pouches and packets, plastic straw and plastic flags.</p> <p>Meanwhile Ministry of Environment, Forest and Climate Change, Government of India has also notified the Plastic Waste Management Amendment Rules, 2021, on 12 August 2021 and Government of India has banned 22 single use plastic items from July 1, 2022.</p> <p>During inspection it was noticed that, M/s. NLC India Limited Township has 1400 shops, and all the shops are using banned items.</p> <p>M/s.NLC India Limited shall take necessary steps to set a good example for the rest of India by implementing a plastic ban in and around the NLC Township. Plastic awareness slogans shall exhibit in various locations across the Township, including schools. (Vide Plate No. 11)</p>
	<p>(vi) Removal of Invasive Species</p> <p>It is submitted that, the Hon'ble High court of Madras in WP (MD) No.3633 of 2014 and M.P. (MD) No 1 of 2014 Dated: 06.07.2023 had ordered to remove the invasive species using the CSR funds. During inspection it was observed that an invasive plant species like Prosopisjuliflora, Acacia Auriculiformis, has spreaded all the industrial premises and also Township area. The M/s.</p>

	<p>NLC India Limited shall take necessary steps to remove the invasive species and develop the green belt with native species using their CSR fund (Vide Plate No. 12)</p>
	<p>(vii) Environmental Awareness</p> <ul style="list-style-type: none"> • M/s. NLC India Limited already has a Power Station Training Institute through which training/awareness was conducted to all employees regarding the operation of boiler, turbine etc and other industry sector. In order to create awareness among employees and the general public, the M/s. NLC India Limited shall take necessary steps to open an Environmental Gallery that displays various prototype models of Effluent Treatment Plants (ETP), Sewage Treatment Plants (STP), ESP, ATFD, Eco products as alternative to banned single use plastics etc., • Industrial ECO Clubs were already formed in the thermal power plants and Mines. Hence M/s. NLC India Limited shall honour the best environmental industrial Eco-Clubs during the celebration of national significant days such as World Environment day, Independence Day etc., • M/s. NLC India Limited shall take necessary steps to highlight the fortnightly environmental newsletter under the heading of ECO-NEWS (E News Letter) that covers the environmental awareness, sustainable development, and developmental initiatives done by the Eco clubs. • The M/s. NLC India Limited shall take necessary action to procure mobile environmental awareness van in order to create environmental awareness to the nearby Village, schools and colleges.
	<p>(viii) Periodical collection of samples for future reference</p> <p>The committee has identified 27 locations for regular monitoring of ground water, Surface water and soil samples in and around the M/s. NLC India Limited once in 3 months, 6 months and yearly once for future reference and also analyse the trends.</p>

	<p>(ix) Strengthening of Corporate Environment Cell</p> <ul style="list-style-type: none"> • M/s. NLC India Limited has a Corporate Environmental Cell to look after the mines, thermal sector and this cell shall be strengthened to act as a Self-Monitoring with coordinated control approach. • Currently, about 10 environmental engineers are working in M/s NLC campus and each environmental engineer is posted in each mine, thermal plant and are advised to report to the unit head. A proper coordination between unit's Environmental Engineers and Corporate Environmental cell needs to be strengthened. • All the Environmental Engineers must be brought under the Corporate Environmental Cell (CEC) and headed by a Chief General Manager / Executive Director rank officer having rich experience in the environmental sector. The Corporate Environmental Cell shall be directly under the control of Chairman & Managing Director (CMD), M/s. NLC India Limited. • CEC shall work effectively to safeguard the environment due to mining and thermal activities under the direction of CMD.
--	--

17.0 Details of Proposed Sampling Location

A). Details of proposed sampling location for complete monitoring at periodical interval of 1 month for one year

S.No.	Name of the Location	Latitude & Longitude	Nature of sample	Frequency of sampling
1.	Tholkappiar Nagar	Lat :11.5479011 Long : 79.4645875	Bore well water	1 month
2.	NLC Supplied Water at U.Mangalam Tank	Lat : 11.536934 Long: 79.43294	Ground water	1 month
3.	Bore well Water at Block 22 Pump House (Jawahar college)	Lat:11.611015 Long:79.465224	Bore well water Drinking water	1 month
4.	Vanadhirayapuram Village	Lat : 11.51474 Long: 79.56248	Bore well water Drinking water	1 month

B). Details of proposed sampling location for regular monitoring of ground water, surface water and soil samples

Sampling Frequency: 3 Month

S.No.	Name of the Location	Latitude & Longitude	Nature of sample	Frequency of sampling
1.	Tholkappiar Nagar	Lat :11.5479011 Long : 79.4645875	Bore well water	3 month
2.	NLC Supplied Water at U.Mangalam Tank	Lat : 11.536934 Long: 79.43294	Ground water	3 month
3.	Ground Water - Ammeri Village	Lat:11.540906 Long:79.464939	Ground water Drinking water	3 month
4	Mine –I Outlet at Veenangeni	Lat : 11.550328 Lon: 79.532898	Surface water	3 month
5.	Muppaneri	Lat :11.552566 Long : 79.459706	Surface water	3 month
6.	Mine I A Seepage Discharge point to Sengulam&Anbarasankulam lake	Lat:11°32'45.209 N Long :79°31'4.6084 E	Surface water	3 month
7.	Mine I A Seepage Discharge point into Ayyan lake	Lat : 11.516503 Long : 79.745177	Surface water	3 month
8.	Discharge from Neyveli TPS II - Surface water	Lat : 11.561055 Lon: 79.452025	surface water	3 month
9.	Discharge from NNTPS - Surface water	Lat : 11.579525 Lon: 79.461002	Surface water	3 month
10.	TPS I expansion - Effluent outlet at the boundary of the plant	Lat : 11.589242 Long : 79.469104	Surface water	3 month

Sampling Frequency: 6 Month

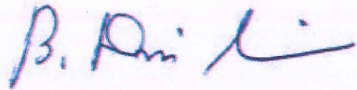
S.No.	Name of the Location	Latitude & Longitude	Nature of sample	Frequency of sampling
1.	Bore well Water at Block 22 Pump House (Jawahar college)	Lat:11.611015 Long:79.465224	Bore well water Drinking water	6 month

2.	Near OHT -Thandapani Koil street, Kaikalakuppam	Lat:11.595008 Long:79.446353	Bore well water Drinking water	6 month
3.	Block-24 (Near 8 road)	Lat:11.605764 Long:79.499952	Tube well Drinking water	6 month
4.	Vanadhirayapuram Village	Lat : 11.51474 Long: 79.56248	Bore well water Drinking water	6 month
5.	Kunankurichi	Lat:11.550124 Long:79.434509	Ground water Drinking water	6 month
6.	Walaja Lake	Lat : 11.514743 Long: 79.562468	surface water	6month

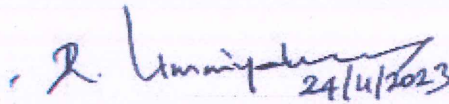
Sampling Frequency: 1 Year

S.No.	Name of the Location	Latitude & Longitude	Nature of sample	Frequency of sampling
1.	Uttangal	Lat:11.530315 Long:79.41812	Ground water	1 year
2.	Mudhanai	Lat:11.569503 Long:79.403743	Ground water	1 year
3.	Kammapuram	Lat:11.477065 Long:79.423253	Tube well Drinking Water	1 year
4.	Erumboor	Lat:11.469897 Long:79.513353	Tube wellwater Public use	1 year
5.	Karunkuzhi	Lat:11.48432 Long:79.513576	Tube well Drinking water for school &Village	1 year
6.	Vadalur Sabai	Lat:11.548187 Long:79.545985	Dug wellwater Temple use	1 year
7.	Perumal Lake	Lat : 11.569720 Long: 79.6635400	Surface water	1 year
8.	Pallitheru, Vadaku Vellore	Lat :11.5479011 Long : 79.464587	Soil sample	1 year

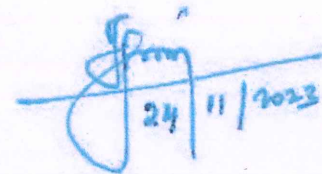
S.No.	Name of the Location	Latitude & Longitude	Nature of sample	Frequency of sampling
9.	Vadaku Vellore By-pass	Lat : 11.5464224 Long : 79.462478	Soil sample	1 year
10.	Paddy field near NNTPS Stack	Lat : 11.589198 Lon: 79.446201	Soil sample	1 year
11.	Karikuppam Village Agricultural Land near Thermal Power Plant	Lat: 11.51955 Long: 79.743695	Soil sample	1 year



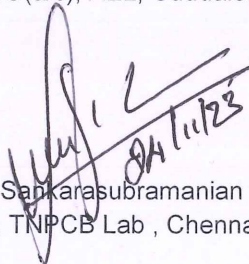
B.Devi Sivasankari
DCSO(a/c), AEL, Cuddalore



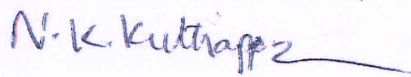
Dr R.Umayakunjaram
DEE, Cuddalore



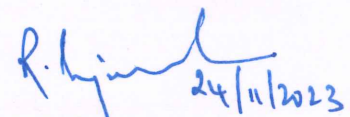
Dr A.SamuelRajkumar
JCEE(M), Cuddalore



S.Sankarasubramanian
DD, TNPCB Lab, Chennai



N.K.Kuttiappan
Lead Assessor of NABET,
Quality council of India



Dr R.Rajamanickam
ACEE, TNPCB

18. ANNEXURE -1**CONSOLIDATED ROA OF TREATED SEWAGE FROM M/S. NLC INDIA LTD,
MINE I FOR THE YEAR 2018-2023**

Mine - I Outlet of Sewage Treatment Plant						
S. No.	Month	pH	TSS	BOD	COD	Ammonical Nitrogen (NH₃-N)
1	Apr-18	7.7	8	12	52	12.89
2	May-18	6.92	8	10	88	<MDL
3	Jun-18	7.59	10	8	64	<MDL
4	Jul-18	8.98	6	26	160	12.89
5	Aug-18	6.96	16	20	80	<MDL
6	Sep-18	7.16	8	4	16	–
7	Oct-18	7.93	12	16	32	–
8	Nov-18	7.41	12	26	100	16.25
9	Dec-18	7.85	10	10	40	7.84
10	Jan-19	8.01	6	4	16	6.16
11	Feb-19	7.8	10	16	64	10.09
12	Mar-19	6.84	6	8	32	8.4
13	Jan-20	6.49	10	20	80	8.4
14	Feb-20	6.96	12	28	120	–
15	Mar-20	7.92	8	20	88	10.09
16	May-20	7.45	8	14	64	–
17	Jun-20	6.46	12	18	72	–
18	Jul-20	7.61	14	18	72	8.96
19	Sep-20	7.73	10	16	48	6.72
20	Oct-20	8.54	8	18	48	4.48
21	Nov-20	6.28	10	16	44	3.36
22	Dec-20	7.4	14	20	52	5.04
23	Jan-21	7.6	10	16	44	–
24	Feb-21	7.05	10	16	44	3.92
25	Apr-21	6.74	10	14	44	–
26	Jun-21	6.52	14	16	44	<MDL
27	Jul-21	7.36	10	16	44	<MDL
28	Aug-21	7.97	12	18	44	–
29	Sep-21	8	12	16	44	<MDL
30	Oct-21	6.59	14	16	44	<MDL
31	Nov-21	6.48	12	16	44	<MDL
32	Dec-21	6.61	12	16	44	<MDL
33	Jan-22	7.16	16	18	44	<MDL
34	Feb-22	8.12	12	16	44	<MDL
35	Mar-22	7.02	14	16	44	<MDL
36	May-22	6.19	16	20	64	<MDL
37	Jun-22	5.91	10	8	32	4.48

Mine - I Outlet of Sewage Treatment Plant						
S. No.	Month	pH	TSS	BOD	COD	Ammonical Nitrogen (NH ₃ -N)
38	Aug-22	7.44	10	10	32	3.36
39	Sep-22	6.57	10	14	64	5.04
40	Oct-22	6.66	12	5.8	24	<MDL
41	Nov-22	7.96	12	12	32	4.48
42	Dec-22	7.07	12	8	32	6.72
43	Jan-23	9.12	18	36	144	6.72
44	Feb-23	6.94	18	16.4	56	9.52
45	Mar-23	9.1	6	6	80	6.2
Standards for STP		5.5-9.0	30	20	100	-

Inference: The ROA of the treated sewage samples collected for the year 2018 – 2019, 2019-2020, 2020-2021, 2021-2022 and 2022 -2023 from the outlet of the STP reveals that the parameters were within the standards prescribed by the Board in most of the months.

ANNEXURE 2**CONSOLIDATED ROA OF TREATED EFFLUENT
FROM M/S. NLC INDIA LTD., MINE I FOR THE YEAR 2018-2023**

Mine - I Outlet of Effluent Treatment Plant					
S.No.	Month	pH	TSS	BOD	COD
1	Apr-18	8.99	12	28	112
2	May-18	6.58	22	18	116
3	Jun-18	5.19	10	10	96
4	Jul-18	7.04	8	28	180
5	Aug-18	6.95	12	16	64
6	Sep-18	6.87	8	30	144
7	Oct-18	7.76	28	16	64
8	Nov-18	5.28	10	22	88
9	Dec-18	5.37	12	6	32
10	Jan-19	8.01	8	14	56
11	Feb-19	7.57	8	16	64
12	Mar-19	4.28	8	8	32
13	Dec-19	8.92	14	18	76
14	Jan-20	3.83	12	20	80
15	Feb-20	6.02	22	22	108
16	Mar-20	7.67	12	22	96
17	May-20	4.1	12	20	80
18	Jun-20	5.77	12	10	40
19	Sep-20	5.89	12	18	72
20	Oct-20	4.72	24	18	80
21	Nov-20	5.7	14	18	76
22	Jan-21	4.8	12	20	64
23	Feb-21	4.83	14	20	80
24	Apr-21	6.52	10	16	44
25	Jun-21	6.48	14	18	64
26	Jul-21	7.36	14	20	80
27	Aug-21	6.04	18	20	80
28	Sep-21	7.98	14	20	80
29	Oct-21	5.48	14	20	80
30	Nov-21	6.06	18	20	88
31	Dec-21	5.78	16	20	80
32	Jan-22	7.28	16	20	88
33	Feb-22	7.6	16	20	88
34	Mar-22	4.31	18	20	88
35	May-22	6.16	12	16	44
36	Jun-22	6.91	12	8	16
37	Jul-22	8.23	21	2	8
38	Aug-22	7.75	18	8	32

Mine - I Outlet of Effluent Treatment Plant					
S.No.	Month	pH	TSS	BOD	COD
39	Sep-22	6.23	22	16	72
40	Oct-22	7.91	12	6.1	24
41	Nov-22	6.62	8	18	64
42	Dec-22	7.18	18	28	144
43	Jan-23	6.33	12	18	64
44	Feb-23	7.98	14	9.8	48
45	Mar-23	4.02	10	5	64
Standards for ETP		5.5-9.0	200	100	-

Inference: The ROA of the treated effluent samples collected for the year 2018 – 2019, 2019-2020, 2020-2021, 2021-2022 and 2022 -2023 from the outlet of the ETP reveals that the parameters were within the standards prescribed by the board except the exceedance of pH (8/45).

ANNEXURE 3**CONSOLIDATED ROA OF THE AMBIENT AIR QUALITY MONITORING SURVEY
CONDUCTED AT M/S. NLC INDIA LTD., MINE I FOR THE YEAR 2018-23**

Parameters		PM10		PM2.5		SO2		NOx	
Standards		500		250		120		120	
Year		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
2018-19	1 st Half year	150	344	26	70	10	18	12	20
	2 nd Half year	320	158	34	68	11	20	14	22
2019-20	1 st Half year	310	340	58	94	15	18	17	20
	2 nd Half year	256	316	54	102	8	13	10	16
2020-21	1 st Half year	285	292	56	58	14	16	17	19
	2 nd Half year	286	296	59	60	9	10	11	12
2021-22	1 st Half year	168	579	69	78	13	16	18	21
	2 nd Half year	129	133	45	51	14	17	16	23
2022-23	1 st Half year	222	260	38	46	12	22	13	23
	2 nd Half year	230	250	32	56	14	16	15	20

Inference: Ambient Air Quality Survey was conducted at six locations inside and outside of the Mine I. The minimum and maximum value at particular location is given above. As per the survey report of the year 2018 – 2023, all the parameters are within the standards prescribed by the Board except PM10 in the range of 579 $\mu\text{g}/\text{m}^3$ (1/10) which is slightly higher than 500 $\mu\text{g}/\text{m}^3$.

ANNEXURE 4**CONSOLIDATED ROA OF TREATED EFFLUENT
FROM M/S. NLC INDIA LTD., MINE IA FOR THE YEAR 2018-2023**

Mine - IA Outlet of Effluent Treatment Plant					
S.No.	Month	pH	TSS	BOD	COD
1	Apr-18	6.73	8	8	32
2	May-18	6.65	8	12	48
3	Jun-18	6.64	14	13	80
4	Jul-18	7.49	6	8	32
5	Sep-18	5.95	8	8	32
6	Oct-18	6.05	10	4	16
7	Nov-18	7.21	12	8	32
8	Dec-18	7.76	14	16	64
9	Jan-19	7.12	8	8	32
10	Feb-19	7.74	2	8	32
11	Mar-19	7.34	6	4	16
12	Apr-19	6.81	6	12	64
13	May-19	5.86	8	4	16
14	Jun-19	6.92	4	4	16
15	Jul-19	7.13	6	8	32
16	Aug-19	6.41	6	8	32
17	Sep-19	7.35	8	18	64
18	Oct-19	7.81	12	16	64
19	Nov-19	6.26	16	26	108
20	Dec-19	8.5	14	24	96
21	Jan-20	4.38	10	20	76
22	Feb-20	6.32	12	18	72
23	Mar-20	7.69	10	14	64
24	Sep-20	4.53	14	20	88
25	Oct-20	4.69	14	18	76
26	Dec-20	4.94	14	20	72
27	Apr-21	3.32	16	20	72
28	Jun-21	7.21	20	22	96
29	Jul-21	6.75	20	22	96
30	Aug-21	7.4	20	22	116
31	Sep-21	7.73	16	20	76
32	Oct-21	7.07	14	22	88
33	Nov-21	6.13	16	20	76
34	Dec-21	6.06	14	20	72
35	Apr-22	6.84	18	22	88
36	May-22	7.44	16	18	60

37	Jun-22	8.19	10	8	32
38	Jul-22	8.38	10	10	32
39	Aug-22	7.01	8	12	64
40	Sep-22	6.84	16	12	48
41	Oct-22	7.03	12	8	40
42	Dec-22	7.51	8	8	32
43	Jan-23	5.8	18	12	32
44	Feb-23	7.08	16	8.2	40
45	Mar-23	5.83	8	3.2	24
Standards for ETP		5.5-9.0	200	100	-

Inference: The ROA of the treated effluent samples collected for the year 2018 – 2019, 2019-2020, 2020-2021, 2021-2022 and 2022 -2023 from the outlet of the ETP reveals that the parameters were within the standards prescribed by the Board.

CONSOLIDATED ROA OF SEEPAGE WATER
FROM M/S. NLC INDIA LTD., MINE IA FOR THE YEAR 2018-2023

Mine - IA Outlet of Seepage water					
S. No.	Month	pH	TSS	BOD	COD
1	Apr-18	8.24	6	4	16
2	May-18	7.91	6	12	48
3	Jun-18	7.3	22	18	96
4	Jul-18	7.61	8	16	64
5	Sep-18	6.09	12	18	64
6	Oct-18	6.27	12	12	32
7	Nov-18	7.29	18	20	80
8	Dec-18	7.85	12	8	32
9	Jan-19	6.96	12	16	64
10	Feb-19	7.68	4	14	64
11	Mar-19	7.18	12	8	32
12	Apr-19	6.49	8	8	32
13	May-19	6.97	12	8	32
14	Jun-19	6.64	8	8	32
15	Jul-19	7.27	8	12	64
16	Aug-19	6.7	8	16	64
17	Sep-19	6.45	12	26	104
18	Oct-19	8.08	18	22	88
19	Nov-19	8.36	18	28	112
20	Dec-19	8.5	14	24	96
21	Jan-20	5.68	12	22	80
22	Feb-20	6.36	20	26	136
23	Mar-20	7.8	14	18	72
24	Sep-20	3.63	20	26	112
25	Oct-20	4.8	18	20	80
26	Nov-20	4.25	18	24	116
27	Dec-20	3.86	20	24	88
28	Apr-21	4.13	16	18	64
29	Jun-21	8.48	16	20	92
30	Jul-21	4.16	18	20	88
31	Aug-21	5.41	16	24	104
32	Sep-21	7.75	18	22	80
33	Oct-21	6.36	18	20	80
34	Nov-21	3.08	20	22	104

35	Dec-21	5.34	18	20	88
36	Feb-22	8.2	18	24	104
37	Mar-22	7.87	20	22	96
38	Apr-22	7.16	16	24	96
39	May-22	7.96	14	16	48
40	Jun-22	7.78	10	16	64
41	Jul-22	8.2	18	12	40
42	Aug-22	7.04	2	20	88
43	Sep-22	7.32	20	16	88
44	Oct-22	7.3	18	4.2	16
45	Dec-22	7.76	12	16	64
46	Jan-23	7.28	12	7.4	32
47	Feb-23	7.16	12	7.8	32
48	Mar-23	7.14	14	5.4	40
Standards for Seepage					

Inference: The ROA of the seepage water samples collected for the year 2018 – 2019, 2019-2020, 2020-2021, 2021-2022 and 2022 -2023 from the outlet of the seepage reveals that the parameters were within the standards prescribed by the Board.

ANNEXURE 5

**CONSOLIDATED ROA OF THE AMBIENT AIR QUALITY MONITORING SURVEY
CONDUCTED AT M/S. NLC INDIA LTD., MINE IA FOR THE YEAR 2018-2023**

Parameters		PM10		PM2.5		SO2		NOx	
Standards		500		250		120		120	
Year		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
2018-19	1 st Half year	158	320	34	68	20	11	22	14
	2 nd Half year	270	290	55	56	8	15	12	18
2019-20	1 st Half year	340	268	98	55	22	17	25	20
	2 nd Half year	268	360	58	105	12	22	15	26
2020-21	1 st Half year	290	286	56	55	12	15	15	18
	2 nd Half year	287	297	58	54	10	12	4	7
2021-22	1 st Half year	104	340	72	86	15	13	25	18
	2 nd Half year	110	109	46	64	14	15	16	18
2022-23	1 st Half year	248	262	32	40	10	18	13	20
	2 nd Half year	232	252	34	58	14	18	15	22

Inference: Consolidated ROA of the AAQ survey in the year 2018-2019, 2019-2020, 2020-2021, 2021-2022 and 2022-2023 reveals that all the parameters are within the standards prescribed by the Board.

ANNEXURE 6**CONSOLIDATED ROA OF TREATED SEWAGE FROM M/S. NLC, MINE II FOR
THE YEAR 2018-2023**

Mine - II Outlet of Sewage Treatment Plant						
S. No.	Month	pH	TSS	BOD	COD	Ammonical Nitrogen (NH₃-N)
1	Apr-18	7.22	8	16	64	–
2	May-18	7.2	6	8	80	–
3	Jun-18	7.58	10	12	96	–
4	Jul-18	8.02	12	10	96	–
5	Aug-18	7.06	8	30	148	–
6	Sep-18	7.09	8	36	144	–
7	Oct-18	7.52	38	72	288	–
8	Nov-18	7.48	12	26	104	–
9	Dec-18	7.75	8	12	64	–
10	Jan-19	7.17	28	34	136	–
11	Feb-19	7.58	12	26	104	–
12	Mar-19	7.78	12	8	32	–
13	Apr-19	6.92	8	36	144	–
14	May-19	6.17	12	18	64	–
15	Jun-19	6.98	8	26	104	–
16	Jul-19	6.81	8	18	64	–
17	Aug-19	6.69	12	8	32	–
18	Sep-19	7.26	18	18	72	–
19	Oct-19	7.45	10	20	80	–
20	Nov-19	7.9	12	20	80	–
21	Apr-20	8.1	14	18	96	–
22	May-20	8.1	14	18	96	–
23	Jun-20	7.2	14	14	64	–
24	Jul-20	7.09	12	16	76	–
25	Aug-20	7.27	12	14	72	–
26	Sep-20	8.01	14	20	80	–
27	Oct-20	8.92	14	20	88	–
28	Nov-20	7.15	14	20	80	–
29	Jan-21	7.43	12	20	80	–
30	Feb-21	7.81	18	22	96	–
31	Mar-21	7.87	10	18	48	–
32	Apr-21	7.08	14	20	72	–
33	Jun-21	7.26	18	20	80	–
34	Jul-21	7.22	14	20	80	–
35	Aug-21	8.12	18	24	108	–
36	Sep-21	8.31	16	18	72	–

Mine - II Outlet of Sewage Treatment Plant						
S. No.	Month	pH	TSS	BOD	COD	Ammonical Nitrogen (NH ₃ -N)
37	Oct-21	6.64	18	22	88	–
38	Nov-21	7.02	16	20	96	–
39	Dec-21	7.4	20	22	96	–
40	Feb-22	8.07	14	22	96	–
41	Mar-22	7.73	14	16	48	–
42	Apr-22	6.82	10	16	40	<MDL
43	May-22	7.41	18	18	64	<MDL
44	Jun-22	6.7	18	20	96	5.04
45	Jul-22	8.24	16	26	80	–
46	Aug-22	6.96	8	20	80	8.4
47	Sep-22	7.54	20	32	112	10.64
48	Oct-22	7.7	16	5.4	24	<MDL
49	Dec-22	6.79	12	16	64	3.36
50	Jan-23	6.71	133	9.2	24	3.36
51	Feb-23	7.28	16	12	32	3.36
52	Mar-23	6.54	18	6.4	40	5.6
Standards for STP		5.5-9.0	30	20	100	–

Inference: The ROA of the treated sewage samples collected for the year 2018-2023 from the outlet of the STP reveals that the parameters were generally within the standards prescribed by the Board except the exceedance of TSS (2/52), BOD (15/52), COD (10/52).

ANNEXURE 7**CONSOLIDATED ROA OF TREATED EFFLUENT
FROM M/S. NLC INDIA LTD., MINE II FOR THE YEAR 2018-23**

Mine - II Outlet of Effluent Treatment Plant					
S. No.	Month	pH	TSS	BOD	COD
1	Apr-18	7.84	6	12	66
2	May-18	7.99	8	4	48
3	Jun-18	7.72	12	8	64
4	Jul-18	7.61	10	8	48
5	Aug-18	7.19	10	20	80
6	Sep-18	7.21	6	26	104
7	Oct-18	7.65	14	12	32
8	Nov-18	7.83	8	8	64
9	Dec-18	7.92	10	18	72
10	Jan-19	7.53	8	12	32
11	Feb-19	7.57	10	8	32
12	Mar-19	7.99	6	18	64
13	Apr-19	6.87	6	8	64
14	May-19	6.73	8	4	16
15	Jun-19	7.28	6	18	64
16	Jul-19	6.74	6	20	84
17	Aug-19	6.51	8	4	16
18	Sep-19	6.68	8	8	32
19	Oct-19	4.86	14	26	104
20	Nov-19	4.53	14	22	84
21	Apr-20	8.18	12	16	88
22	May-20	8.18	12	16	88
23	Jun-20	4.54	18	18	88
24	Jul-20	6.25	14	18	80
25	Aug-20	5.43	14	18	80
26	Sep-20	7.79	12	18	72
27	Oct-20	8.84	10	18	72
28	Nov-20	7.68	16	18	84
29	Jan-21	7.68	18	22	96
30	Feb-21	6.15	16	20	80
31	Mar-21	7.6	14	20	80
32	Apr-21	7.75	18	22	80
33	Jun-21	7.01	18	20	80
34	Jul-21	7.08	20	22	92
35	Aug-21	8.17	20	26	112
36	Sep-21	8.51	18	22	80

Mine - II Outlet of Effluent Treatment Plant					
S. No.	Month	pH	TSS	BOD	COD
37	Oct-21	7.72	16	20	80
38	Nov-21	7.18	14	18	92
39	Dec-21	6.93	18	20	92
40	Apr-22	6.84	18	22	88
41	May-22	7.44	16	18	60
42	Jun-22	8.19	10	8	32
43	Jul-22	8.38	10	10	32
44	Aug-22	7.01	8	12	64
45	Sep-22	6.84	16	12	48
46	Oct-22	7.03	12	8	40
47	Dec-22	7.51	12	8	32
48	Jan-23	7.59	18	8	32
49	Feb-23	8.1	12	10	32
50	Mar-23	6.6	130	6	56
Standards for ETP		5.5-9.0	200	100	-

Inference: Consolidated ROA of the treated trade effluent samples collected from the ETP outlet reveals that, mostly the parameters were within the standards prescribed by the Board except the exceedance of pH (4/50).

CONSOLIDATED ROA OF SEEPAGE WATER
FROM M/S. NLC INDIA LTD., MINE II FOR THE YEAR 2018-23

Mine - II Outlet of Seepage water					
S. No.	Month	pH	TSS	BOD	COD
1	Apr-18	7.68	10	16	64
2	May-18	7.67	12	10	72
3	Jun-18	7.55	18	6	72
4	Jul-18	8.25	12	10	104
5	Aug-18	7.54	12	8	32
6	Sep-18	6.3	10	8	32
7	Oct-18	7.9	12	14	52
8	Nov-18	7.92	18	10	66
9	Dec-18	8.12	6	12	48
10	Jan-19	6.89	12	4	16
11	Feb-19	7.26	18	4	16
12	Mar-19	7.85	8	12	60
13	Apr-19	6.65	12	4	16
14	May-19	6.75	10	18	72
15	Jun-19	7.42	8	8	32
16	Jul-19	6.81	8	22	88
17	Aug-19	6.52	12	18	80
18	Sep-19	7.65	12	16	64
19	Oct-19	8.63	18	18	72
20	Nov-19	7.91	16	24	96
21	Apr-20	8.15	10	14	84
22	May-20	8.15	10	14	84
23	Jun-20	7.25	20	22	104
24	Jul-20	6.8	16	20	88
25	Aug-20	7.37	16	20	88
26	Sep-20	7.6	18	22	96
27	Oct-20	8.68	16	22	104
28	Nov-20	7.12	18	22	96
29	Dec-20	4.01	16	22	96
30	Jan-21	7.93	14	20	88
31	Feb-21	7.14	16	104	10
32	Mar-21	7.93	20	22	96
33	Apr-21	7.72	14	22	104
34	Jun-21	8.06	14	20	88
35	Jul-21	7.99	16	18	72
36	Aug-21	8.35	16	22	108
37	Sep-21	8.39	14	20	80
38	Oct-21	8.18	14	18	72

Mine - II Outlet of Seepage water					
S. No.	Month	pH	TSS	BOD	COD
39	Nov-21	6.68	16	20	80
40	Dec-21	6.77	20	22	96
41	Feb-22	8.07	14	22	96
42	Mar-22	7.87	20	22	96
43	Apr-22	7.16	16	24	96
44	May-22	7.96	14	16	48
45	Jun-22	7.78	10	16	64
46	Jul-22	8.2	18	12	40
47	Aug-22	7.04	2	20	88
48	Sep-22	7.32	20	16	88
49	Oct-22	7.3	18	4.2	16
50	Dec-22	7.76	12	16	64
51	Jan-23	7.6	26	12	32
52	Feb-23	7.56	18	7.2	24
53	Mar-23	6.91	12	4.8	64
54	Dec-22	7.76	12	16	64
Standards		5.5-9.0	200	100	-

Inference: Consolidated ROA of the water samples collected from the Seepage outlet reveals that, all the parameters were within the standards prescribed by the Board.

ANNEXURE 8**CONSOLIDATED ROA OF TREATED SEWAGE FROM M/S. NEYVELI THERMAL POWER STATION II FOR THE YEAR 2020-23**

NLC Limited Thermal Power Station II Outlet of Sewage Treatment Plant						
S. No.	Month	pH	TSS	BOD	COD	Ammonical Nitrogen (NH₃-N)
1	Oct-20	7.98	8	10	44	4.48
2	Nov-20	7.25	8	10	40	2.8
3	Dec-20	8.41	10	16	48	3.92
4	Jan-21	8.2	14	20	56	8.4
5	Feb-21	6.94	10	16	44	4.48
6	Apr-21	6.31	10	16	44	<MDL
7	Jun-21	6.78	12	18	44	<MDL
8	Jul-21	6.22	10	16	44	<MDL
9	Aug-21	6.45	16	18	44	
10	Sep-21	7.76	10	16	44	<MDL
11	Oct-21	6.48	10	16	44	<MDL
12	Nov-21	7.49	10	16	40	<MDL
13	Jan-22	7.26	14	16	44	<MDL
14	Feb-22	7.83	12	18	56	4.48
15	Mar-22	7.45	14	18	44	<MDL
16	Apr-22	7.17	12	18	48	<MDL
17	May-22	7.54	16	18	40	<MDL
18	Jun-22	7.65	12	16	64	8.4
19	Jul-22	8.44	12	20	80	5.3
20	Aug-22	7.43	68	64	256	15.12
21	Sep-22	8.08	24	18	48	5.04
22	Oct-22	6.52	8	34	112	<MDL
23	Nov-22	7.74	16	12	32	10.65
24	Dec-22	7.75	18	60	80	6.72
25	Jan-23	6.33	23	6.4	40	4.48
26	Feb-23	6.56	12	24	80	8.96
27	Mar-23	6.34	14	4.6	40	<2
Standards for STP		5.5-9.0	30	20	100	15

Inference: ROA of the treated sewage reveals that, most of the parameters are within the standards prescribed by the Board except the exceedance of – TSS 1/27, BOD (4/27), COD (2/27) ammonical nitrogen (1/27).

ANNEXURE 9**CONSOLIDATED ROA OF TREATED EFFLUENT FROM M/S. NEYVELI
THERMAL POWER STATION II FOR THE YEAR 2018-2023**

NLC Limited Thermal Power Station II – Outlet of Effluent Treatment Plant										
S. No.	Month	pH	TSS	TDS	Chlorides	Sulphates	Oil & Grease	BOD	COD	% Sodium
1	Apr-18	8.18	8	620	230	132	2	16	64	13.16
2	May-18	8.08	6	1016	140	96	–	8	64	31.63
3	Jun-18	8.29	8	714	318	126	–	8	64	47.67
4	Jul-18	8.32	8	608	105	31	<1.0	8	28	10.02
5	Aug-18	8.24	8	698	160	92	2	18	72	12.37
6	Sep-18	8.02	6	764	255	150	2	8	32	8.14
7	Oct-18	8.02	12	886	245	112	2	12	44	10.1
8	Nov-18	7.97	8	986	215	62	2	18	64	10.1
9	Dec-18	8.16	8	936	310	260	2	18	64	10.1
10	Jan-19	7.81	8	698	315	168	2	10	44	6.82
11	Feb-19	7.73	8	472	215	110	2	18	64	8.95
12	Mar-19	7.9	8	800	355	120	2	8	32	8.14
13	Apr-19	7.85	6	1176	305	152	2	18	64	8.14
14	May-19	8.19	10	754	210	68	2	18	64	10.1
15	Jun-19	7.08	8	850	220	102	2	8	32	6.78
16	Jul-19	7.52	6	326	105	60	2	12	32	8.14
17	Sep-19	7.87	12	768	255	82	2	20	72	6.78
18	Oct-19	8.78	12	2458	805	400	2	18	72	10.1
19	Nov-19	8.19	12	958	255	112	2	22	92	10.1
20	Dec-19	7.46	18	902	255	102	<MDL	24	92	8.14
21	Jan-20	7.87	18	586	220	102	–	22	88	10.1
22	Feb-20	8.03	14	954	210	102	–	26	124	12.37
23	Mar-20	8.34	20	820	255	112	2	22	104	10.1
24	May-20	8.22	18	1116	355	152	<MDL	24	108	10.1
25	Jun-20	8.39	14	1308	455	252	<MDL	18	80	8.14
26	Jul-20	8.2	14	1018	210	102	<MDL	18	72	8.99
27	Aug-20	6.39	86	810	280	122	2	24	108	10.1
28	Sep-20	7.28	104	932	185	187	<2	21	176	
29	Oct-20	8.22	18	802	225	122	2	22	96	10.1
30	Nov-20	7.72	20	830	210	102	<MDL	22	92	8.99
31	Dec-20	8.3	12	810	255	112	<MDL	22	104	11.64
32	Jan-21	8.12	18	1670	625	302	<MDL	22	96	10.02
33	Feb-21	8.08	20	852	225	132	<MDL	20	80	9.61
34	Apr-21	7.92	20	1152	405	204	–	22	96	7.75
35	Jun-21	7.23	16	1016	255	126	–	22	88	7.75
36	Jul-21	7.1	18	1012	230	120	–	22	92	6.16

NLC Limited Thermal Power Station II – Outlet of Effluent Treatment Plant										
S. No.	Month	pH	TSS	TDS	Chlorides	Sulphates	Oil & Grease	BOD	COD	% Sodium
37	Aug-21	7.5	18	862	260	134	–	24	108	8.99
38	Oct-21	7.85	18	896	305	126	–	22	96	25.36
39	Dec-21	8.12	14	934	325	196	–	22	80	8.99
40	Jan-22	7.9	18	534	210	122	–	20	80	7.04
41	Feb-22	8.03	16	1098	310	172	–	22	96	7.75
42	Mar-22	8.19	18	1034	305	165	–	22	96	6.34
43	Apr-22	8.29	18	1182	455	212	–	20	92	6.16
44	May-22	7.07	14	316	110	58	–	20	64	
45	Jun-22	7.79	12	488	220	152	–	12	32	17.35
46	Jul-22	7.44	20	82	25	14	–	10	24	1.47
47	Aug-22	8.32	18	284	145	62	–	12	72	3.52
48	Oct-22	7.49	12	360	142	48	–	36	128	8.14
49	Nov-22	7.94	14	2810	725	428	–	16	64	16.03
50	Dec-22	6.12	20	198	115	53	–	6	32	40.59
51	Jan-23	7.21	4	738	218	78	–	16	32	4.27
52	Feb-23	6.38	165	288	145	35	–	62	240	6.23
53	Mar-23	6.9	100	330	115	25	–	12	40	5.66
Standards for ETP		5.5-9.0	100	2100	1000	1000	10	30	250	-

Inference: ROA of the treated trade effluent samples collected for the year 2018 - 2023 reveals that, most of the parameters are within the standards prescribed by the Board except the exceedance of TSS (2/53), TDS (3/53), BOD (2/53).

ANNEXURE 10

**CONSOLIDATED ROA OF STACK EMISSION SURVEY CONDUCTED
AT M/S. NEYVELI THERMAL POWER STATION II FOR YEAR 2018-2023**

Parameters		PM		SO ₂		NO _x	
Standards		100		600		600	
Year		Min.	Max.	Min.	Max.	Min.	Max.
2018-19	1 st Half year	62	138	3728	3737	120	650
	2 nd Half year	102	132	3518	3759	610	652
2019-20	1 st Half year	52	56	3210	3799	133	134
	2 nd Half year	108	138	3539	3790	614	640
2020-21	1 st Half year	52	80	2380	2851	191	260
	2 nd Half year	48	56	1641	2714	163	714
2021-22	1 st Half year	46	56	2253	3078	265	310
	2 nd Half year	20	65	645	1442	90	215
2022-23	1 st Half year	104	120	2512	2528	464	478
	2 nd Half year	55	58	1442	1448	476	478

Inference: Consolidated ROA of the Stack emission survey in the year 2018-2023 reveals that PM 4 /10 NO_x 4/10 and SO_x (10/10).

ANNEXURE 11

**CONSOLIDATED ROA OF THE AMBIENT AIR QUALITY MONITORING SURVEY
CONDUCTED AT M/S. NEYVELI THERMAL POWER STATION II FOR
YEAR 2018-2023**

Parameters		PM10		PM2.5		SO2		NOx	
Standards		100		60		80		80	
Year		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
2018-19	1 st Half year	56	108	20	64	52	86	56	90
	2 nd Half year	54	112	56	62	46	84	52	88
2019-20	1 st Half year	95	124	44	78	68	89	72	95
	2 nd Half year	85	112	45	80	56	86	60	90
2020-21	1 st Half year	88	95	52	56	20	26	16	21
	2 nd Half year	89	97	55	59	23	29	18	24
2021-22	1 st Half year	82	129	49	57	18	23	21	28
	2 nd Half year	68	124	51	62	17	29	18	31
2022-23	1 st Half year	50	88	32	48	40	68	44	68
	2 nd Half year	44	80	32	48	40	68	42	70

Inference: Ambient Air Quality Survey was conducted at six locations inside and outside of the thermal power station. The minimum and maximum value at particular location is given above. Consolidated ROA of the AAQ survey in the year 2018-2023 reveals that all the parameters are within the standards prescribed by the Board except the exceedance of PM₁₀ (6/10) PM_{2.5} (5/10) Sox (4/10) and NOx (4/10)

ANNEXURE 12**CONSOLIDATED ROA OF TREATED SEWAGE FROM M/S. NEYVELI THERMAL
POWER STATION II EXPANSION FOR THE YEAR 2018-23**

NLC Limited Thermal Power Station II Outlet of Sewage Treatment Plant						
Sl. No.	Month	pH	TSS	BOD	COD	Ammonical Nitrogen (NH₃-N)
1	Apr-18	7.87	8	8	32	10.65
2	May-18	7.86	6	8	45	<MDL
3	Jun-18	8.32	8	4	16	<MDL
4	Jul-18	8.36	10	6	16	7.28
5	Aug-18	7.98	10	16	64	12.59
6	Sep-18	7.96	8	18	32	10.09
7	Oct-18	7.64	12	8	28	10.09
8	Nov-18	8.02	8	12	32	10.09
9	Dec-18	8.01	12	12	64	12.33
10	Jan-19	7.74	8	16	32	6.72
11	Feb-19	7.79	8	6	16	8.4
12	Mar-19	7.89	6	8	32	6.72
13	Apr-19	7.59	6	12	32	10.09
14	May-19	7.23	8	12	32	8.4
15	Jun-19	7.69	6	4	16	6.72
16	Jul-19	7.7	8	18	64	12.33
17	Aug-19	7.26	8	12	32	8.4
18	Sep-19	7.45	8	8	32	8.4
19	Oct-19	8.78	18	20	80	10.09
20	Nov-19	8.85	12	18	72	8.96
21	May-20	7.99	12	18	48	8.48
22	Jun-20	7.55	12	14	64	8.4
23	Jul-20	7.63	14	18	72	8.4
24	Aug-20	7.07	14	16	64	6.72
25	Oct-20	8.36	16	20	52	8.4
26	Nov-20	7.71	14	18	52	4.48
27	Apr-21	7.22	10	16	48	<MDL
28	Jun-21	7.08	14	18	48	<MDL
29	Jul-21	6.22	10	16	44	<MDL
30	Aug-21	7.28	10	16	44	<MDL
31	Sep-21	8.1	12	14	44	<MDL
32	Oct-21	7.27	10	16	40	<MDL
33	Nov-21	7.16	10	16	44	<MDL
34	Jan-22	6.86	18	20	56	<MDL
35	Feb-22	7.5	18	22	80	6.72

NLC Limited Thermal Power Station II Outlet of Sewage Treatment Plant						
Sl. No.	Month	pH	TSS	BOD	COD	Ammonical Nitrogen (NH ₃ -N)
36	Mar-22	7.62	14	18	48	<MDL
37	Apr-22	7.73	10	16	44	<MDL
38	May-22	7.12	16	18	48	<MDL
39	Jun-22	4.29	8	4	8	6.72
40	Jul-22	8.4	18	24	88	7.84
41	Aug-22	7.68	12	12	64	7.24
42	Sep-22	8.18	16	48	64	4.48
43	Oct-22	6.99	24	3.8	16	<MDL
44	Nov-22	6.7	18	8	32	3.92
45	Dec-22	7.63	8	8	32	4.48
46	Jan-23	7.84	8	12	64	3.92
47	Feb-23	8.45	18	16	40	3.92
48	Mar-23	8.6	6	4	72	5.6
Standards for STP		5.5-9.0	30	20	100	15

Inference: The consolidated ROA of the treated sewage samples collected for the year 2018-2023 from the outlet of the STP reveals that most of the parameters are within the standards prescribed by the Board except the exceedance of pH 1/48 and BOD (3/48).

ANNEXURE 13
CONSOLIDATED ROA OF EFFLUENT TREATMENT PLANT OF
M/S. NLC INDIA LTD – TPS II EXP FOR THE YEAR 2019 – 2023

Sl. No	MONT H	pH	TSS	TDS	Chlorides	Sulphates	Oil & Grease	BO D	CO D	% Sodium
1.	FEB-19	7.63	8	1524	610	252	2	8	32	12.37
2.	MAR-19	7.88	8	2230	655	252	2	12	64	8.95
3.	APR-19	7.73	8	1964	415	218	2	18	64	8.14
4.	MAY-19	6.78	8	518	145	68	2	8	32	9.11
5.	JUN-19	7.8	8	2022	610	220	2	18	40	8.14
6.	JUL-19	6.83	8	534	155	62	2	12	32	8.14
7.	AUG-19	6.63	8	1892	620	240	2	18	64	8.14
8.	SEP-19	7.84	8	776	205	102	2	8	32	8.14
9.	OCT-19	8.61	8	1942	505	252	<MDL	16	64	8.14
10.	NOV-19	8.41	10	1982	695	302	<MDL	18	80	6.16
11.	MAY-20	7.95	14	1982	610	312	2	24	112	13.16
12.	JUN-20	7.63	14	1950	555	284	<MDL	22	108	10.62
13.	AUG-20	6.34	18	2982	610	422	<MDL	22	104	10.1
14.	SEP-20	8.68	20	1814	460	252	<MDL	26	104	8.14
15.	OCT-20	8.64	20	1860	510	252	2	24	108	11.64
16.	NOV-20	7.85	20	1930	705	302	<MDL	26	116	9.61
17.	JAN-21	7.85	10	2160	705	362	-	28	164	6.34
18.	FEB-21	8.12	18	1670	455	252	-	24	104	10.43
19.	APR-21	8.23	18	2768	825	402	-	28	108	9.5
20.	JUN-21	6.98	18	1938	610	328	-	28	124	10.43
21.	JUL-21	7.38	22	2098	635	318	-	28	124	10.43
22.	SEP-21	8.25	16	1942	450	204	-	26	112	10.02
23.	OCT-21	7.69	22	1528	505	202	-	26	108	20.02
24.	NOV-21	7.91	22	1942	555	250	-	26	116	10.02
25.	APR-22	7.83	18	1004	350	190	-	20	92	10.02

26.	MAY-22	8.25	14	236	80	44	-	18	48	
27.	JUN-22	8.01	4	1075	723.1	152	-	16	64	11.78
28.	JUL-22	8.12	10	648	230	109	-	10	40	3.61
29.	AUG-22	8.27	8	76	40	8	-	8	32	2.45
30.	SEP-22	8.16	26	838	744	16	-	28	96	1.2
31.	OCT-22	7.06	28	620	244	92	-	12	40	9.59
32.	NOV-22	8.3	8	6.72	10.09	-	-	8	32	
33.	DEC-22	7.9	8	1568	870	112	-	26	114	16.03
TNPCB NORMS		5.5-9.0	100	2100	1000	1000	10	30	250	

Inference : ROA of the treated trade effluent samples collected for the year 2019-2023 collected from the outlet of ETP and it reveals that, most of the parameters are within the standards prescribed by the Board except the exceedance of - TDS (4/33).

ANNEXURE 14

**CONSOLIDATED ROA OF STACK EMISSION SURVEY CONDUTED
M/S. NEYVELI THERMAL POWER STATION II EXP FOR YEAR 2018-2023**

Parameters		PM		SO2		NOx	
Standards		50		600		450	
Year		Min.	Max.	Min.	Max.	Min.	Max.
2018-19	1 st Half year	42	-	544	-	101	-
	2 nd Half year	41	-	537	-	102	-
2019-20	1 st Half year	35	36	520	531	94	94
	2 nd Half year	38	-	528	-	122	-
2020-21	1 st Half year	34	36	513	522	85	90
	2 nd Half year	36	38	518	531	188	192
2021-22	1 st Half year	39	40	2338	2719	154	175
	2 nd Half year	30	32	348	359	194	197
2022-23	1 st Half year	37	-	741	-	110	-

Inference: ROA of the Stack emission survey in the year 2018-2023 reveals that all the parameters are within the limit prescribed standard except Sox (1/10).

ANNEXURE – 15

**CONSOLIDATED ROA OF THE AMBIENT AIR QUALITY MONITORING SURVEY
CONDUCTED AT M/S. NLC INDIA LTD, TPS II EXPANSION FOR THE YEAR
2018 – 2023**

Parameters		PM10		PM2.5		SO2		NOx	
Standards		100		60		80		80	
Year		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
2018-19	1 st Half year	52	80	24	58	48	70	54	78
2019-20	1 st Half year	76	112	43	68	57	86	64	91
	2 nd Half year	70	98	40	58	56	76	60	78
2020-21	1 st Half year	88	94	57	59	46	58	21	33
	2 nd Half year	91	98	52	56	12	26	11	19
2021-22	1 st Half year	72	148	36	42	17	31	19	26
	2 nd Half year	68	124	51	62	17	29	18	31
2022-23	1 st Half year	48	74	32	46	12	19	15	22
	2 nd Half year	45	72	38	48	24	40	26	42

Inference : Ambient Air Quality was conducted at six locations inside and outside of the unit TPS II EXP. The minimum and Maximum value at particular locations are given above. ROA of the AAQ survey in the year 2018-2023 reveals that PM₁₀, (3/10) PM_{2.5} (2/10) Sox(1/10) and Nox(1/10).

ANNEXURE – 16**CONSOLIDATED ROA OF TREATED SEWAGE FROM M/S. NLC INDIA LTD,
TPS – 1 EXPANSION FOR THE YEAR 2018 – 2023**

NLC LIMITED TPS- 1 EXPANSION – OUTLET OF SEWAGE TREATMENT PLANT						
S. No	MONTH	pH	TSS	BOD	COD	Ammonical Nitrogen
1.	Apr-18	7.04	4	4	16	5.04
2.	May-18	7.26	6	4	16	<MDL
3.	June-18	7.64	8	6	64	<MDL
4.	July-18	7.78	6	6	32	12.89
5.	Aug-18	7.14	6	8	32	<MDL
6.	Sep-18	7.78	4	4	16	6.72
7.	Oct-18	7.91	10	8	32	4.48
8.	Nov-18	6.83	6	8	32	6.72
9.	Dec-18	7.81	8	8	32	6.72
10.	Jan-19	7.46	4	4	16	5.04
11.	Feb-19	7.97	4	4	16	4.48
12.	Mar-19	7.29	6	8	32	5.04
13.	Apr-19	7.42	4	2	8	4.48
14.	May-19	7.19	6	4	16	6.72
15.	Jun-19	7.76	4	6	16	5.04
16.	Jul-19	7.23	6	8	32	6.72
17.	Aug-19	7.06	6	4	16	6.72
18.	Sep-19	7.65	8	4	32	8.4
19.	Oct-19	8.82	8	8	32	6.72
20.	Nov-19	7.36	22	24	100	8.4
21.	Dec-19	8.49	20	16	64	6.16
22.	Jan-20	7.82	14	22	88	8.4
23.	Feb-20	6.29	12	24	104	12.33
24.	Apr-20	7.86	14	18	80	8.4
25.	May-20	6.38	10	6	32	5.04
26.	Jun-20	7.48	12	18	60	8.4
27.	Jul-20	8.37	12	14	32	6.72
28.	Aug-20	8.11	12	18	48	8.96
29.	Oct-20	8.5	10	8	32	3.98
30.	Nov-20	8.98	12	18	56	6.16
31.	Dec-20	8.38	12	18	44	4.48
32.	Jan-21	7.14	14	18	52	5.04
33.	Feb-21	7.86	10	18	48	4.48
34.	Apr-21	7.22	10	16	48	<MDL
35.	Jun-21	7.08	14	18	48	<MDL
36.	July-21	6.22	10	16	44	<MDL

NLC LIMITED TPS- 1 EXPANSION – OUTLET OF SEWAGE TREATMENT PLANT						
S. No	MONTH	pH	TSS	BOD	COD	Ammonical Nitrogen
37.	Aug-21	7.28	10	16	44	<MDL
38.	Sep-21	8.1	12	14	44	<MDL
39.	Oct-21	7.27	10	16	40	<MDL
40.	Nov-21	7.16	10	16	44	<MDL
41.	Jan-22	6.86	18	20	56	<MDL
42.	Feb-22	7.5	18	22	80	6.72
43.	Mar-22	7.62	14	18	48	<MDL
44.	Apr-22	7.73	10	16	44	<MDL
45.	May-22	7.12	16	18	48	<MDL
46.	Jun-22	4.29	8	4	8	6.72
47.	July-22	8.4	18	24	88	7.84
48.	Aug-22	7.68	12	12	64	7.24
49.	Sep-22	8.18	16	48	64	4.48
50.	Oct-22	6.99	24	3.8	16	<MDL
51.	Nov-22	6.7	18	8	32	3.92
52.	Dec-22	7.63	8	8	32	4.48
53.	Jan-23	7.84	8	12	64	3.92
54.	Feb-23	8.45	18	16	40	3.92
55.	Mar-23	8.6	6	4	72	5.6
	standards	5.5-9.0	30	20	100	15

Inference : ROA of the treated sewage samples collected for the year 2018-2023 from the outlet of the STP and it reveals that most of the parameters are within the standards prescribed by the Board except the exceedance of - pH (1/55), BOD (6/55) and COD (1/55).

ANNEXURE 17
CONSOLIDATED ROA OF TREATED EFFLUENT FROM M/S. NEYVELI
THERMAL POWER STATION - I EXPANSION FROM THE YEAR 2018-23

NLC Thermal Power Station I Expansion – Outlet of Effluent Treatment Plant										
Sl. No	MONTH	pH	TSS	TDS	Chlorides	Sulphates	Oil & Grease	BOD	COD	% Sodium
1	Apr-18	7.73	12	352	105	58	2	16	64	9.59
2	May-18	7.35	8	296	120	86	<MDL	4	16	16.03
3	Jun-18	7.81	36	1818	718	360	4	26	148	62.98
4	Jul-18	7.82	12	266	33	47	<1	6	28	–
5	Aug-18	7.76	12	788	215	320	2	26	144	10.1
6	Sep-18	7.52	8	890	335	152	2	6	32	8.14
7	Oct-18	7.84	14	280	110	32	2	8	32	6.69
8	Nov-18	7.83	8	830	305	112	2	14	56	4.68
9	Dec-18	7.82	10	230	115	60	2	8	32	10.62
10	Jan-19	7.53	8	618	255	128	2	12	32	8.95
11	Feb-19	7.92	6	620	265	132	2	16	60	8.14
12	Mar-19	7.65	6	992	355	68	2	8	32	6.78
13	Apr-19	7.61	8	930	250	116	2	8	32	10.1
14	May-19	7.88	8	540	145	68	2	16	32	8.14
15	Jun-19	8.03	8	398	105	52	2	16	32	6.16
16	Jul-19	7.6	8	622	245	120	2	8	32	6.78
17	Aug-19	7.86	8	90	12	8	2	8	16	10.1
18	Sep-19	7.49	8	1142	390	128	2	16	64	8.14
19	Oct-19	8.47	14	516	135	52	2	16	64	8.14
20	Nov-19	7.56	8	3602	995	602	<MDL	20	80	6.34
21	Dec-19	7.5	12	1246	505	172	<MDL	18	72	8.99
22	Jan-20	8.03	12	522	155	62	<MDL	20	84	8.14
23	Feb-20	6.19	16	176	55	22	<MDL	8	40	6.78
24	May-20	7.84	12	106	40	22	<MDL	8	32	6.78
25	Jun-20	6.07	10	82	35	22	<MDL	8	32	6.78
26	Jul-20	6.35	10	130	40	22	<MDL	8	32	4.12
27	Aug-20	8.38	10	438	155	92	<MDL	14	72	6.78
28	Sep-20	8.72	14	556	205	102	<MDL	18	72	6.78
29	Oct-20	8.21	18	2758	685	362	<MDL	20	88	8.99
30	Nov-20	9.24	14	226	85	48	<MDL	16	52	5.61
31	Dec-20	7.04	10	168	65	42	<MDL	18	64	4.12
32	Jan-21	7.81	16	542	195	122	<MDL	20	80	6.34
33	Feb-21	7.4	12	676	225	128	<MDL	22	96	6.16
34	Apr-21	6.16	14	726	245	122	–	20	88	8.99
35	Jun-21	7.29	18	794	265	110	–	22	96	8.99
36	Jul-21	6.34	14	698	205	102	–	22	88	8.99
37	Aug-21	7.35	18	716	200	102	–	22	88	7.75
38	Sep-21	7.98	18	658	210	102	–	24	104	8.99
39	Oct-21	6.93	16	812	255	116	–	20	88	26.16
40	Nov-21	6.66	18	680	205	102	–	20	80	5.34
41	Jan-22	7.17	12	–	–	–	–	18	44	–

NLC Thermal Power Station I Expansion – Outlet of Effluent Treatment Plant										
Sl. No	MONTH	pH	TSS	TDS	Chlorides	Sulphates	Oil & Grease	BOD	COD	% Sodium
42	Feb-22	7.79	16	–	–	–	–	20	64	5.04
43	Mar-22	7.97	20	1146	365	204	–	20	104	6.16
44	Apr-22	7.56	14	1018	305	204	–	24	108	8.99
45	May-22	7.18	14	256	90	52	–	16	44	–
46	Jun-22	4.51	12	206	70.9	18	–	10	40	5.17
47	Jul-22	8.84	10	220	80	39	–	10	24	2.68
48	Aug-22	7.78	24	148	65	12	–	8	32	5.47
49	Sep-22	7.57	12	188	75	18	–	24	88	0.13
50	Oct-22	8.18	16	318	126	48	–	6.8	24	10.2
51	Nov-22	7.93	12	112	75	28	–	8	16	4.68
52	Dec-22	6.58	32	496	160	68	–	8	32	4.68
53	Jan-23	6.85	18	442	250	68	–	20	80	12.37
54	Feb-23	7.69	10	520	260	62	–	10.6	40	6.69
55	Mar-23	7.1	8	380	195	60	–	5.6	56	9.08
Standards for ETP		5.5-9.0	100	2100	1000	1000	10	30	250	-

Inference: ROA of the treated trade effluent samples collected for the year 2018 - 2023 reveals that, most of the parameters are within the standards prescribed by the Board except the exceedance of pH (1/55), TDS (1/55).

ANNEXURE 18

**CONSOLIDATED ROA OF STACK EMISSION SURVEY CONDUCTED
AT M/S. NEYVELI THERMAL POWER STATION I EXPANSION FOR
YEAR 2018-2023**

Parameters		PM		SO ₂		NO _x	
Standards		100		600		600	
Year		Min.	Max.	Min.	Max.	Min.	Max.
2018-19	1 st Half year	102	–	2866	–	540	–
	2 nd Half year	104	–	3803	–	544	–
2019-20	1 st Half year	84	–	2842	–	484	–
	2 nd Half year	106	–	2945	–	618	–
2020-21	1 st Half year	60	66	1704	2104	291	356
	2 nd Half year	52	54	516	536	264	267
2021-22	1 st Half year	64	66	2102	2115	293	297
	2 nd Half year	28	70	2442	2844	70	131
2022-23	1 st Half year	97	98	2500	2512	408	472
	2 nd Half year	52	–	1433	–	400	–

Inference: ROA of the Stack emission survey in the year 2018-2023 reveals that PM(2/10) , NO_x (1/10) 618 mg/Nm³ and SO_x 3 (7/10).

ANNEXURE 19

**CONSOLIDATED ROA OF THE AMBIENT AIR QUALITY MONITORING SURVEY
CONDUCTED AT M/S. NLC INDIA LTD., TPS I EXPANSION
FOR THE YEAR 2018-23**

Parameters		PM10		PM2.5		SO2		NOx	
Standards		100		60		80		80	
Year		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
2018-19	1 st Half year	54	110	38	80	40	60	46	64
	2 nd Half year	72	118	58	66	42	64	48	68
2019-20	1 st Half year	72	122	42	84	54	88	57	92
	2 nd Half year	74	118	40	82	58	85	62	90
2020-21	1 st Half year	94	98	55	58	22	28	18	22
	2 nd Half year	92	98	58	59	23	29	18	25
2021-22	1 st Half year	91	126	58	78	13	23	15	28
	2 nd Half year	81	148	56	122	14	25	16	27
2022-23	1 st Half year	58	70	32	52	14	20	16	22
	2 nd Half year	48	79	46	53	28	38	30	40

Inference: Ambient Air Quality Survey was conducted at six locations inside and outside of the unit TPS I expansion. The minimum and maximum value at particular location is given above. Consolidated ROA of the Ambient Air Quality Monitoring survey in the year 2018-2023 all the parameters are within the standards prescribed by the Board except the exceedance of – PM 10 (4/10) PM 2.5 (6/10) SOx (2/10) and NOx (2/10)

ANNEXURE 20**CONSOLIDATED ROA OF TREATED SEWAGE FROM M/S. NEYVELI NEW THERMAL POWER STATION FOR THE YEAR DEC 2020-MAR 2023**

NEYVELI NEW THERMAL POWER STATION Outlet of Sewage Treatment Plant						
S. No.	Month	pH	TSS	BOD	COD	Ammonical Nitrogen (NH₃-N)
1	Dec-20	8.82	10	16	52	3.92
2	Nov-20	7.09	14	18	48	5.6
3	Jan-21	6.94	12	18	48	4.48
4	Feb-21	8.12	12	18	48	5.54
5	Mar-21	7.91	10	16	44	<MDL
6	Mar-21	7.08	16	18	48	5.04
7	Apr-21	7.57	12	18	48	<MDL
8	Jun-21	7.59	14	18	44	<MDL
9	Jul-21	6.4	12	18	44	<MDL
10	Aug-21	7.35	12	18	48	<MDL
11	Sep-21	8.14	12	18	48	<MDL
12	Oct-21	7.57	12	18	44	4.48
13	Nov-21	7.43	12	18	44	<MDL
14	Dec-21	7.32	14	16	40	<MDL
15	Jan-22	7.5	16	18	48	<MDL
16	Mar-22	7.87	12	18	44	<MDL
17	Apr-22	7.86	12	16	44	<MDL
18	May-22	7.9	10	18	44	<MDL
19	Jun-22	4.63	8	2	8	5.04
20	Jul-22	8.36	12	26	80	7.28
21	Aug-22	8.19	12	8	32	2.8
22	Sep-22	8	14	20	48	<MDL
23	Oct-22	7.53	10	21	72	<MDL
24	Nov'22	8.06	12	8	32	4.48
25	Dec-22	7.5	12	12	32	12.89
26	Jan-23	7.32	12	14	64	6.72
27	Feb-23	7.76	10	10.6	32	3.92
28	Mar-23	7.39	6	4.2	24	<2
Standards for STP		5.5-9.0	30	20	100	15

Inference: ROA of the treated sewage samples collected for the year December 2020-2021, 2021-2022 and 2022 -2023 from the outlet of the STP reveals that most of the parameters are within the standards prescribed by the Board except the exceedance of - pH (1/31) and BOD (1/31).

ANNEXURE 21**CONSOLIDATED ROA OF TREATED EFFLUENT
FROM M/S. NEYVELI NEW THERMAL POWER STATION FROM THE YEAR
SEP 2020- MARCH 2023**

NEYVELI NEW THERMAL POWER STATION – Outlet of Effluent Treatment Plant									
Sl. No.	Month	pH	TSS	TDS	Chlorides	Sulphates	BOD	COD	% Sodium
1	Sep'20	8.3	18	1368	495	222	22	88	-
2	Oct'20	9.28	18	1678	450	262	24	104	10.62
3	Nov'20	8.39	24	2770	655	316	24	112	10.43
4	Dec'20	8.58	18	2384	610	318	26	116	10.43
5	Jan'21	8.58	20	2872	805	402	24	96	7.75
6	Feb'21	9.44	22	2580	625	326	26	116	10.43
7	Mar'21	8.4	18	2308	855	532	24	108	8.99
8	April'21	7.62	20	2334	725	328	28	116	10.02
9	June'21	6.24	22	2120	725	326	28	116	9.61
10	Jul'21	8.16	20	2034	625	322	26	116	9.61
11	Aug'21	3.26	22	4908	1050	602	28	136	10.02
12	Sep'21	8.33	22	1860	605	302	28	124	11.64
13	Oct'21	7.65	20	1436	455	242	24	116	29.5
14	Nov'21	7.07	22	1456	525	210	26	124	10.1
15	Dec-21	3.2	18	1324	455	220	24	112	7.75
16	Jan-22	3.82	18	1066	325	182	24	108	8.99
17	Mar-22	7.51	16	842	325	122	20	80	6.34
18	Apr-22	8	18	1580	495	252	24	112	10.1
19	May-22	8.42	12	362	105	68	20	64	-
20	Jun-22	5.04	8	521	326	110	12	48	18.97
21	Jul-22	8.74	12	104	35	19.4	6	24	5.69
22	Aug-22	7.83	18	712	510	218	28	8	6.26
23	Sep-22	8.37	18	570	320	136	16	48	1.2
24	Oct-22	8.13	14	416	168	56	23	80	11.64
25	Nov'22	7.22	18	424	120	80	18	72	15.45
26	Dec-22	6.99	18	980	465	118	28	176	16.03
27	Jan-23	7.13	12	1332	675	230	18	80	9.59
28	Feb-23	8.29	12	612	305	85	8	32	14.09
29	Mar-23	8.6	12	510	245	65	5.2	56	12.19
Standards for ETP		5.5-9.0	100	2100	1000	1000	30	250	-

Inference: ROA of the treated trade effluent samples collected for the year September 2020-2021, 2021-2022 and 2022 -2023 collected from the outlet of ETP reveals that most of the parameters are within the standards prescribed by the Board except the exceedance of - pH (6/32), TDS 8/32 chloride (1/32).

ANNEXURE 22

**CONSOLIDATED ROA OF STACK EMISSION SURVEY CONDUCTED
M/S. NEW NEYVELI THERMAL POWER STATION FOR THE YEAR 2020-2023**

Parameters		PM		SO2		NOx	
Standards		30		100		100	
Year		Min.	Max.	Min.	Max.	Min.	Max.
2020-21	1 st Half year	28	-	673	-	255	-
	2 nd Half year	39	46	592	681	258	283
2021-22	1 st Half year	39	48	1497	1499	142	146
	2 nd Half year	42	49	1507	1518	233	239
2022-23	1 st Half year	56	-	1480	-	432	-
	2 nd Half year	52	-	1348	-	488	-

Inference: ROA of the Stack emission survey in the year 2020-2023 reveals that the following parameters are exceedance the standards PM (5/6) , SOX (6/6) and NOx (6/6)

ANNEXURE 23**CONSOLIDATED ROA OF THE AMBIENT AIR QUALITY MONITORING SURVEY
CONDUCTED AT M/S. NEYVELI NEW THERMAL POWER STATION
FOR THE YEAR 2020-23**

Parameters		PM10		PM2.5		SO2		NOx	
Standards		100		60		80		80	
Year		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
2020-21	1 st Half year	85	96	54	57	19	30	16	25
	2 nd Half year	74	96	42	49	12	26	12	38
2021-22	1 st Half year	87	129	32	46	12	22	15	26
	2 nd Half year	46	144	50	118	12	20	15	24
2022-23	1 st Half year	42	68	26	32	08	42	12	48
	2 nd Half year	52	74	40	48	30	38	34	40

Inference: ROA of the AAQ survey in the year 2020-2021, 2021 - 2022 and 2022-2023 reveals that all the parameters are within the standards prescribed by the Board except the exceedance of - PM₁₀ (2/6)

ANNEXURE 24**CONSOLIDATED ROA OF TREATED SEWAGE FROM M/S. NLC INDIA LTD
MODERN SEWAGE TREATMENT PLANT FOR THE YEAR 2018-2023**

Outlet of Sewage Treatment Plant					
S. No.	Month	pH	TSS	BOD	COD
1	May-18	6.67	36	18	96
2	Jun-18	7.4	8	4	16
3	Jul-18	7.45	12	8	32
4	Aug-18	7.34	12	18	72
5	Sep-18	8.08	8	22	84
6	Oct-18	6.65	12	16	64
7	Nov-18	7.71	18	40	184
8	Dec-18	7.8	12	26	104
9	Jan-19	7.32	8	16	32
10	Feb-19	7.72	8	16	64
11	Mar-19	7.85	4	4	12
12	Apr-19	7.39	6	4	16
13	May-19	6.33	8	12	32
14	June-19	7.29	8	12	32
15	July-19	7.34	8	28	112
16	Aug-19	7.64	8	30	104
17	Sep-19	8.17	12	26	104
18	Oct-19	8.79	12	10	40
19	Nov-19	8.23	14	26	104
20	Dec-19	8.14	20	42	172
21	Jan-20	7.72	12	24	96
22	Feb-20	6.75	20	24	116
23	Mar-20	6.98	18	20	80
24	May-20	7.49	12	14	64
25	Jun-20	6.78	12	10	48
26	July-20	7.12	12	14	64
27	Aug-20	6.86	14	18	48
28	Sep-20	7.75	14	20	72
29	Oct-20	8.28	10	18	48
31	Dec-20	7.47	12	18	44
33	Jan-21	7.76	18	20	52
34	Feb-21	7.6	8	16	44
35	Apr-21	7.24	12.00	18.00	44.00
36	Jun-21	8.01	12.00	16.00	44.00
37	Jul-21	6.14	8.00	16.00	40.00
38	Aug-21	7.59	12.00	18.00	44.00
39	Sep-21	8.39	10.00	16.00	44.00
40	Oct-21	7.19	12.00	18.00	44.00

Outlet of Sewage Treatment Plant					
S. No.	Month	pH	TSS	BOD	COD
41	Nov-21	6.95	8.00	10.00	44.00
42	Dec-21	7	12	18	44
43	Jan-22	8	12	16	44
44	Feb-22	8	12	18	44
45	Mar-22	8	12	16	44
46	Apr-22	7.83	14.00	18.00	44.00
47	Jun-22	7.97	10.00	8.00	16.00
48	Jul-22	7.92	12.00	28.00	72.00
49	Aug-22	6.91	10.00	14.00	64.00
50	Sep-22	7.09	16.00	8.00	16.00
51	Oct-22	7.07	10.00	1.60	8.00
52	Nov-22	7.09	12.00	18.00	64.00
53	Dec-22	6.70	12.00	16.00	64.00
54	Jan-23	7.23	18.00	12.00	64.00
55	Feb-23	7.27	26.00	12.00	64.00
56	Mar-23	6.80	16.00	3.30	40.00
57	Apr-23	6.50	18.00	5.40	24.00
58	May-23	7.30	16.00	8.00	32.00
59	June-23	6.76	10.00	6.00	48.00
Standards for ETP		5.5-9.0	200	100	-

Inference: The ROA of the treated effluent samples collected for the year 2018 – 2019, 2019-2020, 2020-2021, 2021-2022 and 2022 -2023 from the outlet of the ETP reveals that the parameters were within the standards prescribed by the board.

ANNEXURE – 25**CONSOLIDATED ROA OF TREATED SEWAGE FROM M/S. TAQA NEYVELI
POWER COMPANY PVT LIMITED FOR THE YEAR 2020-23**

M/s. TAQA NEYVELI POWER COMPANY PVT LIMITED Outlet of Sewage Treatment Plant						
S. No.	Month	pH	TSS	BOD	COD	Ammonical Nitrogen (NH₃-N)
1.	Jan 19	8.01	6	12	40	8.4
2.	Feb 19	6.57	6	4	16	5.6
3.	May 19	6.86	10	10	40	9.52
4.	Aug 19	8.58	6	8	32	6.72
5.	Nov 19	8.20	14	20	80	8.4
6.	Aug 20	7.7	16	14	40	6.16
7.	Jan 21	6.83	14	18	40	<MDL
8.	Feb 21	7.51	8	16	48	3.36
9.	June 21	7.10	12	16	40	<MDL
10.	July 21	8.10	20	26	72	6.72
11.	Aug 21	7.24	12	16	44	<MDL
12.	Sep 21	8.32	14	18	44	<MDL
13.	April 22	7.59	10	16	40	<MDL
14.	June 22	6.41	16	8	32	5.4
15.	July 22	7.01	8	20	80	8.96
16.	Aug 22	7.58	2	18	86	9.52
17.	Sep 22	7.46	12	24	80	5.04
18.	Jan 23	7.65	12	18	64	4.48
19.	Feb 23	7.95	14	12	48	5.04
20.	March 23	6.83	18	12	32	3.92
21.	April 23	8	2	8060	32	2.8
22.	June 23	7.44	10	6	24	3.36
23.	July 23	7.19	08	06	24	3.92
24.	Aug 23	6.98	18	09	40	5.6
Standards for STP		5.5-9.0	30	20	100	15

Inference: ROA of the treated sewage reveals that, most of the parameters are within the standards prescribed by the Board except the exceedance of BOD (2/24).

ANNEXURE 26**CONSOLIDATED ROA OF TREATED EFFLUENT FROM M/S. TAQA NEYVELI
POWER COMPANY PVT LIMITED FOR THE YEAR 2018-2023**

M/s. TAQA NEYVELI POWER COMPANY PVT LIMITED – Outlet of Effluent Treatment Plant										
Sl. No.	Month	pH	TSS	TDS	Chlorides	Sulphates	Oil & Grease	BOD	COD	% Sodium
1	Jan 18	8.16	12	658	210	116	2	8	32	13.45
2	Feb 18	8.85	8	680	225	132	2	12	32	9.59
3	April 18	8.09	8	612	215	110	2	8	32	8.95
4	May 18	8.62	6	860	100	88	<MDL	4	16	10.75
5	June 18	7.28	12	1112	415	210	2	18	72	40.18
6	Aug 18	8.26	18	678	185	140	2	24	92	10.1
7	Oct 18	7.57	10	680	255	118	2	8	32	8.14
8	Nov 18	8.28	8	652	230	60	2	24	88	10.62
9	Jan 19	7.28	8	718	255	112	2	12	32	8.14
10	Feb 19	6.41	12	436	225	68	2	16	64	8.14
11	Mar 19	7.78	4	1192	410	116	2	8	32	10.10
12	Apr 19	7.82	8	716	230	119	2	18	64	10.10
13	May 19	7.66	8	680	235	140	2	18	64	10.10
14	June 19	8.13	8	738	265	116	2	8	32	8.14
15	Aug 19	8.71	8	768	250	130	2	16	64	8.14
16	Sep 19	7.58	8	734	255	102	2	16	64	10.10
17	Oct 19	8.47	18	1162	485	102	2	18	72	10.10
18	Nov 19	8.54	18	796	255	112	2	21	84	12.37
19	Dec 19	7.15	12	778	210	102	<MDL	24	92	8.14
20	Jan 20	8.23	16	412	155	62	<MDL	24	104	6.78
21	Feb 20	7.23	18	798	210	96	<MDL	22	88	8.14
22	May 20	8.22	18	756	210	102	<MDL	20	84	10.62
23	Aug 20	8.67	18	592	205	122	<MDL	22	96	10.62
24	May 23	8.23	8	1046	540	75	--	14	48	10.92
25	June 23	7.52	6	948	475	210	--	05	48	5.38
26	July 23	8.05	16	972	190	86	--	14	88	40
27	Aug 23	7.30	12	920	395	148	--	08	32	7.75
Standards for ETP		5.5-9.0	100	2100	1000	1000	10	30	250	-

Inference: ROA of the treated trade effluent samples collected for the year 2018 - 2023 reveals that, all the parameters are within the standards prescribed by the Board.

ANNEXURE 27

**CONSOLIDATED ROA OF STACK EMISSION SURVEY CONDUTED
AT M/S. TAQA NEYVELI POWER COMPANY PVT LIMITED FOR
YEAR 2018-2023**

Parameters		PM	SO2	NOx
Standards		100	600	600
Year				
2018-19	1 st Half year	40	3737	132
	2 nd Half year	45	3730	130
2019-20	1 st Half year	42	3800	134
	2 nd Half year	44	3835	134
2020-21	1 st Half year	44	3835	138
	2 nd Half year	40	3795	138
2021-22	1 st Half year	41	3794	138
	2 nd Half year	43	3521	145
2022-23	1 st Half year	40	3637	142
	2 nd Half year	42	3727	146.7

Inference: ROA of the Stack emission survey in the year 2018-2023 reveals that all the parameters are within the limit prescribed standard except Sox (10/10).

ANNEXURE 28

**CONSOLIDATED ROA OF THE AMBIENT AIR QUALITY MONITORING SURVEY
CONDUCTED AT M/S. TAQA NEYVELI POWER COMPANY PVT LIMITED FOR
YEAR 2018-2023**

Parameters		PM10		PM2.5		SO2		NOx	
Standards		100		60		80		80	
Year		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
2018-19	1 st Half year	18	46	--	--	4	14	6	16
	2 nd Half year	20	50	--	--	6	18	10	22
2019-20	1 st Half year	44	60	24	38	10	20	13	24
	2 nd Half year	55	76	30	46	12	25	15	29
2020-21	1 st Half year	55	76	30	46	12	25	15	29
	2 nd Half year	58	78	38	42	15	28	19	27
2021-22	1 st Half year	53	79	37	41	16	24	20	28
	2 nd Half year	64	83	25	45	10	21	12	29
2022-23	1 st Half year	54	70	23	34	12	20	17	24
	2 nd Half year	62	76	28	47	12	23	14	25

Inference: Ambient Air Quality Survey was conducted at six locations inside and outside of the thermal power station. The minimum and maximum value at particular location is given above. Consolidated ROA of the AAQ survey in the year 2018-2023 reveals that all the parameters are within the standards prescribed by the Board.

ANNEXURE 29**CONSOLIDATED ROA OF TREATED SEWAGE FROM M/S. IL & FS TAMILNADU
POWER COMPANY LIMITED FOR THE YEAR 2018-23**

Outlet of Sewage Treatment Plant						
Sl. No.	Month	pH	TSS	BOD	COD	Ammonical Nitrogen (NH₃-N)
1.	June-2018	8.13	10	6	32	-
2.	July-2018	8.19	8	8	32	-
3.	Sep-2018	8.58	8	8	16	-
4.	Oct-2018	7.82	8	6	32	8.96
5.	Nov-2018	7.76	12	16	40	-
6.	Dec-2018	8.02	8	12	64	-
7.	Jan-2019	7.93	8	8	32	10.65
8.	Feb-2019	8.01	8	6	16	8.4
9.	Mar-2019	8.04	6	8	32	5.6
10.	Apr-2019	6.52	8	12	32	8.4
11.	May-2019	7.41	8	6	32	6.72
12.	June-2019	7.81	8	8	32	6.72
13.	July-2019	8.32	8	18	32	6.72
14.	Aug-2019	7.39	8	6	32	6.72
15.	Sep-2019	8.6	12	18	72	8.4
16.	Oct-2019	8.12	18	26	104	8.4
17.	Nov-2019	8.45	12	18	76	6.72
18.	Jan-2020	8.06	18	26	104	8.96
19.	Feb-2020	7.52	18	26	112	15.13
20.	Mar-2020	8.25	18	24	104	10.09
21.	May-2020	7.39	20	14	80	8.4
22.	June-2020	7.86	18	20	96	10.09
23.	July-2020	7.71	14	26	96	8.4
24.	Aug-2020	7.96	12	18	72	8.4
25.	Sep-2020	8.11	14	20	64	8.96
26.	Oct-2020	8.89	14	18	48	4.48
27.	Nov-2020	7.42	10	16	48	5.04
28.	Dec-2020	8.39	12	18	48	4.48
29.	Jan-2021	8.28	10	16	44	<MDL
30.	Feb-2021	7.43	10	18	48	4.48
31.	Mar-2021	8.34	12	18	44	<MDL
32.	June-2021	7.21	14	18	48	<MDL
33.	July-2021	7.54	14	20	52	4.48
34.	Sep-2021	6.8	14	20	56	4.48
35.	Oct-2021	7.59	14	18	48	<MDL
36.	Nov-2021	8.1	14	18	48	<MDL

37.	Dec-2021	8.24	14	20	56	5.04
38.	Jan-2022	7.42	14	18	48	<MDL
39.	Feb-2022	8.24	10	16	48	<MDL
40.	Mar-2022	6.84	14	18	48	<MDL
41.	Apr-2022	7.96	14	18	48	<MDL
42.	May-2022	8.3	20	20	96	-
43.	June-2022	8.4	14	6	32	<MDL
44.	July-2022	7.79	8	18	72	6.72
45.	Aug-2022	7.15	12	16	64	5.04
46.	Sep-2022	7.82	8	20	88	5.6
47.	Oct-2022	7.74	14	11	40	<MDL
48.	Nov-2022	7.68	8	16	64	<MDL
49.	Dec-2022	7.85	10	8	24	3.92
50.	Jan-2023	7.74	11	8.2	32	4.48
51.	Feb-2023	8.25	10	16.4	32	3.92
52.	Mar-2023	7.75	8	34	72	4.48
Standards for STP		5.5-9.0	30	20	100	15

Inference: The ROA of the treated sewage samples collected for the year 2018-2023 from the outlet of the STP outlet reveals that, mostly the parameters were within the standards prescribed by the Board except the exceedance of – BOD (6/52) COD (4/52) Nitrogen (1/52).

ANNEXURE 30
CONSOLIDATED ROA OF TREATED EFFLUENT FROM M/S. IL&FS TAMILNADU
POWER COMPANY LTD., FOR THE YEAR June-2018-2023

M/S. IL & FS TAMIL NADU POWER COMPANY LTD.- Outlet of Effluent Treatment Plant										
S. No.	Month	pH	TSS	TDS	Chlorides	Sulphates	Oil & Grease	BOD	COD	Sulfide
1	Jun-2018	8.24	12	1112	418	160	<MDL	8	64	<MDL
2	Jul-2018	8.07	6	978	337	111	2	16	64	<MDL
3	Sep-2018	8.36	6	1574	630	210	<MDL	4	16	<MDL
4	Oct-2018	7.65	8	1728	415	130	<MDL	12	32	<MDL
5	Nov-2018	7.7	14	1210	520	172	<MDL	18	68	<MDL
6	Dec-2018	7.76	10	1078	415	216	2	8	32	<MDL
7	Jan-2019	8.21	10	898	350	128	2	10	40	<MDL
8	Feb-2019	8.26	6	1246	550	148	<MDL	8	28	<MDL
9	Mar-2019	7.83	12	1220	510	320	4	16	40	<MDL
10	Apr-2019	7.72	6	1240	350	12	<MDL	8	28	<MDL
11	May-2019	7.93	6	1248	610	220	<MDL	8	32	<MDL
12	Jun-2019	8.22	8	984	325	148	<MDL	14	52	<MDL
13	Jul-2019	7.01	10	1090	465	210	2	18	64	<MDL
14	Aug-2019	7.99	6	1606	960	552	<MDL	8	32	<MDL
15	Sep-2019	6.56	6	1056	405	102	<MDL	14	36	<MDL
16	Oct-2019	8.57	12	3400	980	602	<MDL	18	72	<MDL
17	Nov-2019	8.74	12	658	265	92	<MDL	22	92	<MDL
18	Jan-2020	8.18	16	748	255	112	<MDL	24	104	<MDL
19	Feb-2020	6.54	12	916	355	122	<MDL	24	108	<MDL
20	Mar-2020	8.16	14	1176	355	126	<MDL	22	84	<MDL
21	May-2020	7.74	14	938	280	118	<MDL	22	96	<MDL
22	Jun-2020	6.73	12	1318	405	202	<MDL	22	96	<MDL
23	Jul-2020	7.44	12	748	210	102	<MDL	16	72	<MDL
24	Aug-2020	3.19	12	1684	555	252	<MDL	20	96	<MDL
25	Sep-2020	7.76	14	766	305	122	<MDL	18	96	<MDL
26	Oct-2020	8.05	18	2034	795	312	<MDL	26	108	<MDL
27	Nov-2020	7.74	16	988	190	102	<MDL	22	84	<MDL
28	Dec-2020	6.9	18	1222	375	168	<MDL	22	96	<MDL
29	Jan-2021	7.26	12	470	210	126	-	20	80	-
30	Feb-2021	7.07	14	1178	355	218	-	20	72	<MDL
31	Mar-2021	7.96	20	1332	450	204	-	22	96	-
32	Jun-2021	6.59	16	886	255	136	-	20	80	-
33	Jul-2021	6.89	14	692	205	102	-	50	96	<MDL
34	Sep-2021	7.97	18	1030	220	124	-	20	80	-
35	Oct-2021	8.31	20	1128	400	202	-	20	80	<MDL
36	Nov-2021	7.62	16	952	325	120	-	20	80	<MDL
37	Dec-2021	8.21	20	1250	405	210	-	24	104	<MDL

M/S. IL & FS TAMIL NADU POWER COMPANY LTD.- Outlet of Effluent Treatment Plant										
S. No.	Month	pH	TSS	TDS	Chlorides	Sulphates	Oil & Grease	BOD	COD	Sulfide
38	Jan-2022	7.47	20	464	200	102		22	96	<MDL
39	Feb-2022	7.39	18	1008	315	162	-	20	80	<MDL
40	Mar-2022	6.59	16	902	305	142	-	20	88	<MDL
41	Apr-2022	7.71	14	348	150	102	-	22	96	<MDL
42	May-2022	7.67	18	488	165	102	-	20	92	<MDL
43	Jun-2022	7.01	12	726	205	102	-	6	16	<MDL
44	Jul-2022	5.06	10	382	115	55.9	-	20	96	3
45	Aug-2022	6.77	12	402	145	90	-	20	88	<MDL
46	Sep-2022	7.43	10	320	205	82	-	28	136	4.8
47	Oct-2022	7.73	22	182	70	24	-	18	64	5.12
48	Nov-2022	7.25	12	275	120	60	-	4	16	<MDL
49	Dec-2022	6.48	8	846	435	210	-	4	32	4.06
50	Jan-2023	7.36	12	574	255	116	2	18	64	<MDL
51	Feb-2023	6.87	12	98	50	12	-	14	40	<MDL
52	Mar-2023	6.51	14	280	150	52	-	14	40	<1
Standards for ETP		5.5-9.0	200	2100	600	1000	10	100	-	2

Inference:

Consolidated ROA of the treated trade effluent samples collected from the ETP outlet reveals that mostly the parameters were within the standards prescribed by the Board except the exceedance of – pH (2/52), TDS (1/52), Chloride (5/52), and sulfide (4/52).

ANNEXURE 31

**CONSOLIDATED ROA OF STACK EMISSION SURVEY CONDUCTED AT
M/S.IL&FS TAMIL NADU POWER COMPANY LIMITED FOR THE
YEAR 2018-2023**

Parameters		PM		SO2		NOx	
Standards		50		200		450	
Year		Min.	Max.	Min.	Max.	Min.	Max.
2018-19	1 st Half year	64	-	302	-	350	-
	2 nd Half year	60	62	224	230	352	354
2019-20	1 st Half year	56	62	232	243	257	268
	2 nd Half year	58	60	236	247	262	265
2020-21	1 st Half year	57	-	243	-	260	-
	2 nd Half year	40	42	164	185	265	271
2021-22	1 st Half year	52	-	182	-	375	-
	2 nd Half year	12	-	126	-	162	-
2022-23	1 st Half year	18	-	32	-	260	-
	2 nd Half year	14	-	36	-	212	-

Inference: Consolidated ROA of the Stack emission survey in the year 2018-2023 reveals that exceedance of – PM 10 (6/10).

ANNEXURE 32

**CONSOLIDATED ROA OF THE AMBIENT AIR QUALITY MONITORING SURVEY
CONDUCTED AT M/S. IL&FS TAMILNADU POWER COMPANY FOR
YEAR 2018-2023**

Parameters		PM10		PM2.5		SO2		NOx	
Standards		100		60		80		80	
Year		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
2018-19	1 st Half year	64	114	34	82	36	98	40	102
	2 nd Half year	68	112	59	62	12	20	14	22
2019-20	1 st Half year	72	116	57	64	20	32	26	38
	2 nd Half year	78	114	46	68	22	34	26	38
2020-21	1 st Half year	75	108	43	66	18	30	22	35
	2 nd Half year	78	89	45	58	23	38	19	32
2021-22	1 st Half year	68	79	-	-	15	23	18	25
	2 nd Half year	17	24	10	12	12	18	14	21
2022-23	1 st Half year	40	72	38	56	14	28	16	30
	2 nd Half year	42	76	32	56	8	26	12	20

Inference: Ambient Air Quality Survey was conducted at six locations inside and outside of the Thermal power station. The minimum and maximum value at particular location is given above. Consolidated ROA of the Ambient Air Quality Monitoring survey in the year 2018-2023 reveals that all the parameters are within the standards prescribed by the Board except the exceedance of - PM₁₀ (4/10) range from 108-116 µg/m³, PM_{2.5} (5/10). In the range of 62-82 µg/m³.

ANNEXURE 33



COMPARISON REPORT OF ANALYSIS OF THE SAMPLE COLLECTED BY THE COMMITTEE WITH ARTICLE POWERING POLLUTION

Comparison - 1

As per the study report 'Powering Pollution':

1	Name of the Location	Neyveli PCS store Discharge
2	Identification No	R1-L 1
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Hardness, Sulphate, TDS, TSS, Oil & Grease, Iron, Fluorine, Calcium, Magnesium, Manganese, Aluminium and Nickel
5	Quantification	Seriously Contaminated
6	Risk Mentioned in the report	Effluent coming from the power plants, were dark black and oily, and in all three cases, exceeded the limits for TSS, Oil and Grease and COD, violating legally binding limits. These discharges also had significant presence of heavy metals like Iron, Aluminium, Nickel, Manganese etc.
7	Page No.	48

The TNPCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental Laboratory, IIT Madras is detailed below:

1.	Name of the Location	Neyveli PCS store Discharge	
2.	Sample code	1	
3.	Sample Nature	Surface Water	
4.	Latitude & Longitude	11.596363, 79.465716	
5.	Date & Time of Sample collection	11.08.2023 & 12.30 P.M	
6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCO ₃ , Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD TSS oil & grease	


7.	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity ,Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD
8.	Exceeded Parameters	Nil
9.	Inference	The quality of the surface water sample is within the standards on land for irrigation prescribed by the Board.
10.	Reference	Enclosed test report

Comparison - 2

As per the study report 'Powering Pollution:

1	Name of the Location	Discharge from NNTPS
2	Identification No	R1-L2
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Hardness, Sulphate, TDS, TSS, Oil& Grease, COD, Iron, Calcium, Magnesium, Aluminium,
5	Quantification	Seriously Contaminated
6	Risk Mentioned in the report	Effluent coming from the power plants, were dark black and oily, and in all three cases, exceeded the limits for TSS, Oil and Grease and COD, violating legally binding limits. These discharges also had significant presence of heavy metals like Iron, Aluminium, Nickel, Manganese etc.
7	Page No.	48

The TNPCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental Laboratory , IIT Madras is detailed below:

1.	Name of the Location	Discharge from NNTPS	
2.	Sample code	2	
3.	Sample Nature	Surface Water	
4.	Latitude & Longitude	Lat : 11.579525 Lon: 79.461002	
5.	Date & Time of Sample collection	11.08.2023 at 12.45 pm	


6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo3, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD TSS oil & grease	
7.	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity ,Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD	
8.	Exceeded Parameters	Nil	
9.	Inference	The quality of the water sample is within the standards prescribed by the Board.	
10	Reference	Enclosed test report	

Comparison - 3

As per the study report 'Powering Pollution:

1	Name of the Location	Discharge from NNTPS
2	Identification No	R1- L3
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Hardness, chloride , sulphate, TDS, TSS, Fluorine, Iron, Calcium, Magnesium, Manganese , Mercury Aluminium, Nickel
5	Quantification	Seriously Contaminated
6	Risk Mentioned in the report	Nil
7	Page No.	45

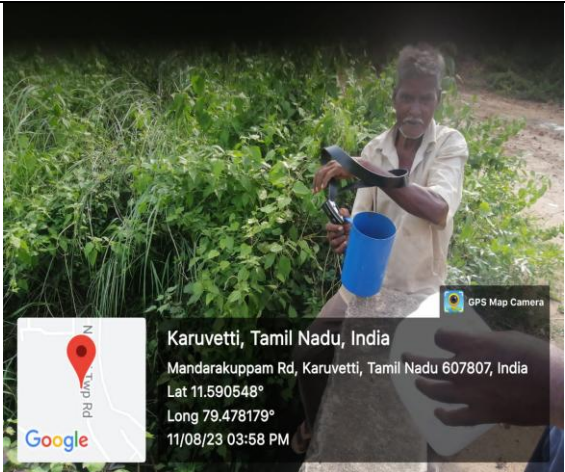
The TNPCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental Laboratory , IIT Madras is detailed below:

1.	Name of the Location	Discharge from NNTPS	
2.	Sample Code	2	
3.	Sample Nature	Surface Water	
4.	Latitude & Longitude	Lat : 11.579525 Lon: 79.461002	
5.	Date & Time of Sample collection	11.08.2023 at 12.45 pm	
6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo3, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD TSS oil & grease	
7.	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity ,Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD	
8.	Exceeded Parameters	Nil	
9.	Inference	The quality of the water sample is within the standards prescribed by the Board.	
10	Reference	Enclosed test report	

Comparison - 4**As per the study report 'POWERing Pollution:**

1	Name of the Location	Direct Discharge from TPS-I
2	Identification No	R1-L4
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, TSS, Oil& Grease, COD, Iron, Manganese, Aluminium. Nickel
5	Quantification	Seriously Contaminated
6	Risk Mentioned in the report	Effluent coming from the power plants, were dark black and oily, and in all three cases, exceeded the limits for TSS, Oil and Grease and COD, violating legally binding limits. These discharges also had significant presence of heavy metals like Iron, Aluminium, Nickel, Manganese etc.
7	Page No.	48

The TNPCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental Laboratory , IIT Madras is detailed below:

1.	Name of the Location	Direct Discharge from TPS-I	
2.	Sample code	11	
3.	Sample Nature	Surface Water	
4.	Latitude & Longitude	Lat : 11.590535 Lon: 79.478162	
5.	Date & Time of Sample collection	11.08.2023 at 03.58 pm	
6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo3, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD TSS oil & grease	


7.	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity ,Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD
8.	Exceeded Parameters	Nil
9.	Inference	The quality of the water sample is within the standards prescribed by the Board.
10.	Reference	Enclosed test report

Comparison - 5

As per the study report 'Powering Pollution:

1	Name of the Location	Discharge from Neyveli TPS II
2	Identification No	R1-L5
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Hardness, TDS, TSS, Fluoride, Calcium, Magnesium, Iron, Aluminium
5	Quantification	Seriously Contaminated
6	Risk Mentioned in the report	Effluents at location R1-L5 were a mix of effluents coming out from the power plants and may also contain mine discharges. This was also seriously contaminated with high TSS in violation of limits, and presence of Fluoride, Iron, Magnesium, Silicon, Aluminium in high concentrations
7	Page No.	48

The TNPCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental Laboratory , IIT Madras is detailed below:

1.	Name of the Location	Discharge from Neyveli TPS II	
2.	Sample Code	3	
3.	Sample Nature	Surface Water	
4.	Latitude & Longitude	Lat : 11.561055 Lon: 79.452025	
5.	Date & Time of Sample collection	11.08.2023 at 12.55 pm	


6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo ₃ , Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD TSS oil & grease
7.	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity, Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD
8.	Exceeded Parameters	Nil
9.	Inference	The quality of the water sample is within the standards prescribed by the Board.
10	Reference	Enclosed test report

Comparison - 6

As per the study report 'Powering Pollution:

1	Name of the Location	Opposite to Main Gate of Mine II –Kootu Kudineer Thittam near Valayamadevi
2	Identification No	R1-L6
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Hardness, Alkalinity, TDS, TSS, Iron, Calcium, Magnesium, Total Chromium, Manganese, Mercury, Aluminium, Nickel
5	Quantification	Significantly Contaminated
6	Risk Mentioned in the report	Effluent from location R1-L 6, Opposite to Main Gate of NLC Mine 2, Kootu Kudineer Thittam near Valaiyamadevi carrying discharge of Mine 2 was also teeth and bones. Moderate amounts lead to dental effects, but long-term ingestion of large amounts can lead to potentially severe skeletal problems.”
7	Page No.	48

The TNPCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental Laboratory , IIT Madras is detailed below:


1.	Name of the Location	Opposite to Main Gate of Mine II – Kootu Kudineer Thittam near Valayamadevi	
2.	Sample Code	6	
3.	Sample Nature	Surface Water	
4.	Latitude & Longitude	Lat : 11.561003 Lon: 79.451945	
5.	Date & Time of Sample collection	11.08.2023 at 4.40 pm	
6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo3, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD	
7.	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity , Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD	
8.	Exceeded Parameters	Nil	
9.	Inference	The quality of the water sample is within the standards prescribed by the Board.	
10.	Reference	Enclosed test report	

Comparison - 7

As per the study report 'Powering Pollution:

1	Name of the Location	Coal Mine Discharge from Mine –I
2	Identification No	R1-L7
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Iron, Aluminium,
5	Quantification	Significantly Contaminated
6	Risk Mentioned in the report	Nil
7	Page No.	45

The TNPCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental Laboratory , IIT Madras is detailed below:



1.	Name of the Location	Coal Mine Discharge from Mine –I	
2.	Sample Code	10	
3.	Sample Nature	Surface Water	
4.	Latitude & Longitude	Lat : 11.58316 Lon: 79.467776	
5.	Date & Time of Sample collection	11.08.2023 at 06.53 pm	
6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo3, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD	
7.	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity ,Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD	
8.	Exceeded Parameters	Nil	
9.	Inference	The quality of the water sample is within the standards prescribed by the Board.	
10.	Reference	Enclosed test report	

Comparison - 8

As per the study report 'Powering Pollution:

1	Name of the Location	Paravanar River Carrying NLC Mine-II Discharge
2	Identification No	R1-L8
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Hardness, Total Alkalinity, TDS, Iron, Calcium, Magnesium, Aluminium
5	Quantification	Significantly Contaminated
6	Risk Mentioned in the report	Nil
7	Page No.	45

The TNPCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental Laboratory , IIT Madras is detailed below:

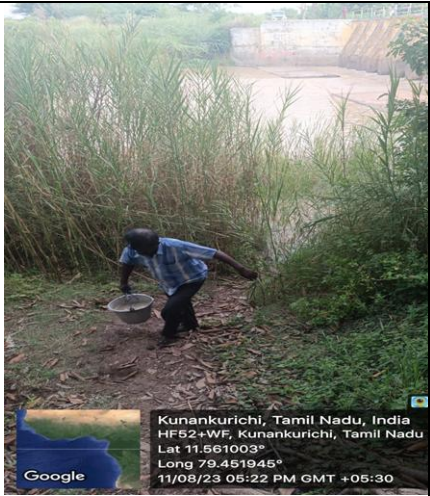

1.	Name of the Location	Paravanar River Carrying NLC Mine-II Discharge	
2.	Sample Code	7	
3.	Sample Nature	Surface Water	
4.	Latitude & Longitude	Lat : 11.572065 Lon: 79.517808	
5.	Date & Time of Sample collection	11.08.2023 at 04.13 pm	
6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo3, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD	
7.	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity ,Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD	
8.	Exceeded Parameters	Nil	
9.	Inference	The quality of the water sample is within the standards prescribed by the Board.	
10.	Reference	Enclosed test report	

Comparison - 9

As per the study report 'Powering Pollution:

1	Name of the Location	Walaja Lake
2	Identification No	R1-L10
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Hardness, TDS, Iron, Calcium, Magnesium, Aluminium, Manganese, Nickel
5	Quantification	Seriously Contaminated
6	Risk Mentioned in the report	Nil
7	Page No.	45


The TNPCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental Laboratory , IIT Madras is detailed below:

1.	Name of the Location	Walaja Lake	
2.	Sample Code	8	
3.	Sample Nature	Surface Water	
4.	Latitude & Longitude	Lat : 11.514743 Lon: 79.562468	
5.	Date & Time of Sample collection	11.08.2023 at 05.22 pm	
6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo3, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD	 <p>Kunankurichi, Tamil Nadu, India HF52+WF, Kunankurichi, Tamil Nadu Lat: 11.561003° Long: 79.461945° 11/08/23 05:22 PM GMT +05:30</p>
7.	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity ,Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD	
8.	Exceeded Parameters	Nil	
9.	Inference	The quality of the water sample is within the standards prescribed by the Board.	
10	Reference	Enclosed test report	

Comparison - 10**As per the study report 'Powering Pollution:**

1	Name of the Location	Aadhandarkollai bore well near Thropathiamman temple 300m away from ash pond
2	Identification No	R1- L12
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Hardness, TDS, Fluoride, Iron, Calcium, Manganese
5	Quantification	Seriously Contaminated
6	Risk Mentioned in the report	Borewell at Aadhandarkollai near Thiravupathi Amman temple (R1-L12) was found to be seriously contaminated with high turbidity, hardness, TDS, Fluoride, Iron, Calcium, Manganese. This is a hand pump close to the ash pond and people confirmed that they have been using it for drinking purposes.
7	Page No.	45

The TNPCB committee has collected the Bore Well sample and the inference based on the analysis report furnished by CUBE Environmental laboratory , IIT Madras is detailed below:

1.	Name of the Location	Bore well Located near OHT, Thandapani Koil Street, Kaikalarkuppam	
2.	Sample Code	5	
3.	Sample Nature	Bore well	
4.	Latitude & Longitude	Lat : 11.595008 Lon: 79.446353	
5.	Date & Time of Sample collection	11.08.2023 at 02.00 pm	
6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo ₃ , Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD	
7.	Parameters within the limit of prescribed drinking water specification (IS 10500-2012)	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Arsenic, Chromium, Mercury, Selenium, Boron, Calcium, Magnesium, Sulphide, Total Alkalinity, Sodium, Potassium, BOD & COD, Total Hardness as CaCo ₃ , Aluminium, Iron, Manganese, Nickel	

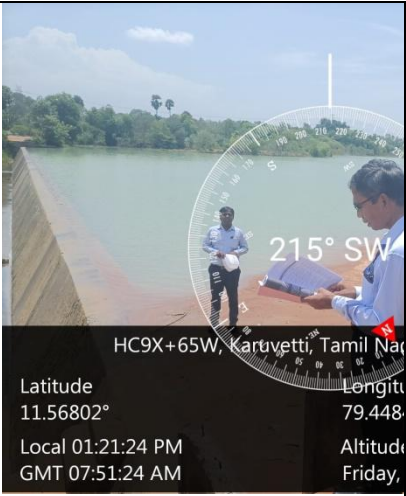
8.	Exceeded Parameters	Lead
9.	Inference	The standard of Lead is 0.01 mg/l. however as per the report of analysis Lead is 0.011 mg/L. The quality of the water sample is within the standards except the above parameters. The water is not severely contaminated.
10.	Reference	Enclosed test report

Comparison - 11

As per the study report 'Powering Pollution:

1	Name of the Location	Pond near ash pond water discharge to the pond sometimes
2	Identification No	R1-L13
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Hardness, TDS, Iron, Calcium, Manganese, Iron, Aluminium, Nickel
5	Quantification	Significantly Contaminated
6	Risk Mentioned in the report	Nil
7	Page No.	46

The TNPCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental laboratory , IIT Madras is detailed below:

1.	Name of the Location	Artificial Lake located at North side of TS-II, South side of NNTPS, west side of abandoned ash pond	
2.	Sample Code	4	
3.	Sample Nature	Surface Water	
4.	Latitude & Longitude	Lat : 11.56802 Lon: 79.44848	
5.	Date & Time of Sample collection	11.08.2023 at 01.20 pm	
6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo3, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD	
7.	Parameters within the	pH, Conductivity ,Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium,	


	limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	Boron, BOD & COD
8.	Exceeded Parameters	Nil
9.	Inference	The quality of the water sample is within the standards prescribed by the Board.
10.	Reference	Enclosed test report

Comparison - 12

As per the study report 'Powering Pollution:

1	Name of the Location	Vanadhirayapuram Village 100m from the mine
2	Identification No	R1-L14
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Boron
5	Quantification	Significantly Contaminated
6	Risk Mentioned in the report	The dugwell at Vaanadhirayapuram Village (R1-L14), about 100 meters from the Mine 1A showed high levels of Silicon and Boron. Local people have been complaining about the quality of this water.
7	Page No.	48

The TNPCB committee has collected the Bore Well sample and the inference based on the analysis report furnished by CUBE Environmental laboratory , IIT Madras is detailed below:

1.	Name of the Location	Located at Vanadhirayapuram Village	
2.	Sample Code	16	
3.	Sample Nature	Bore well	
4.	Latitude & Longitude	Lat : 11.51474 Lon: 79.56248	
5.	Date & Time of Sample collection	11.08.2023 at 06.23 pm	
6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo3, Calcium, Magnesium,	

		Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD	
7.	Parameters within the limit of prescribed drinking water specification (IS 10500-2012)	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Arsenic, Chromium, Mercury, Selenium, Boron, Calcium, Magnesium, Sulphide, Total Alkalinity, Sodium, Potassium, BOD & COD, Total Hardness as CaCo ₃ , Manganese, Aluminium, Iron	
8.	Exceeded Parameters	Nickel, Lead.	
9.	Inference	The standard of Nickel is 0.02 mg/L, as per the report of analysis Nickel is 0.206 mg/L. The standard of Lead is 0.01 mg/L, as per the report of analysis Lead is 0.020 mg/L. The soil samples around this project sites has not indicated presence of nickel and lead. Hence, 0.206 mg/l appears a sporadic value and this may be taken for periodical monitoring, say monthly for 3 consecutive periods to conclude the same for level of contamination. The quality of the water sample is within the standards except the above parameters. The water is not severely contaminated.	
10.	Reference	Enclosed test report	

Comparison - 13

As per the study report 'Powering Pollution:

1	Name of the Location	Ayikuppam Kulkanchavadi Bore well
2	Identification No	R1-L15
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Nil
5	Quantification	Virtually Un-contaminated
6	Risk Mentioned in the report	Nil
7	Page No.	46

The TNPCB committee has collected the bore Well sample and the inference based on the analysis report furnished by CUBE Environmental laboratory , IIT Madras is detailed below:

1.	Name of the Location	Mariyamman Temple, Ayikuppam Village	
2.	Sample Code	17	
3.	Sample Nature	Bore well	
4.	Latitude & Longitude	Lat : 11.617468 Lon: 79.664808	
5.	Date & Time of Sample collection	11.08.2023 at 06.40 pm	
6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo3, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD	
7.	Parameters within the limit of prescribed drinking water specification (IS 10500-2012)	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Arsenic, Chromium, Mercury, Selenium, Boron, Calcium, Magnesium, Sulphide, Total Alkalinity, Sodium, Potassium, BOD & COD, Total Hardness as CaCo3, Aluminium, Iron, Manganese, Lead	
8.	Exceeded Parameters	Nickel	
9.	Inference	The standard of Nickel is 0.02 mg/L, as per the report of analysis Nickel is 0.024 mg/L. The quality of the water sample is within the standards except the above parameters. The water is not severely contaminated.	
10.	Reference	Enclosed test report	


Comparison - 14

As per the study report 'Powering Pollution:

1	Name of the Location	Kanjamanadanpettai pond water
2	Identification No	R1-L16
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Iron, Aluminium

5	Quantification	Significantly Contaminated
6	Risk Mentioned in the report	(R1-L16) had minor contamination of Aluminium and Iron.
7	Page No.	49


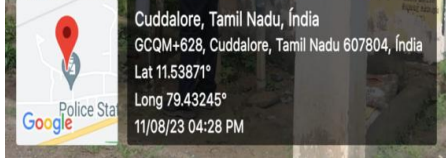
The TNPCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental laboratory , IIT Madras is detailed below:

1.	Name of the Location	Kanjamanadanpettai pond water	
2.	Sample Code	18	
3.	Sample Nature	Surface Water	
4.	Latitude & Longitude	Lat : 11.573015 Lon: 79.611106	
5.	Date & Time of Sample collection	11.08.2023 at 06.15 pm	
6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo3, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD	
7.	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity ,Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD	
8.	Exceeded Parameters	Nil	
9.	Inference	The quality of the water sample is within the standards prescribed by the Board.	
10.	Reference	Enclosed test report	

Comparison - 15**As per the study report 'Powering Pollution:**

1	Name of the Location	NLC piped water(Drinking water supplied by NLC management)
2	Identification No	R1-L17
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Aluminium
5	Quantification	Significantly Contaminated
6	Risk Mentioned in the report	The piped water supply close to this same location was also tested R1-L17, which is piped drinking water supplied by NLC management. The water was found to be contaminated with Aluminium exceeding the limits. People have complaints about skin diseases and kidney problems. It is likely that the health issues may be due to the combined impact of problems with water quality and other pollution like coal dust, etc as location is close to the mine.
7	Page No.	49

The TNPCB committee has collected the Bore well Water sample and the inference based on the analysis report furnished by CUBE Environmental laboratory , IIT Madras is detailed below:

1.	Name of the Location	NLC Supplied Water at U.Mangalam Tank	
2.	Sample Code	9	
3.	Sample Nature	Tank Water	
4.	Latitude & Longitude	Lat : 11.536934 Lon: 79.43294	
5.	Date & Time of Sample collection	11.08.2023 at 04.30 pm	
6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo3, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD	
7.	Parameters within the limit of prescribed drinking water	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Zinc, Cadmium, Arsenic, Chromium, Mercury, Selenium, Boron, Calcium, Magnesium, Sulphide, Total Alkalinity, Sodium, Potassium, BOD & COD, Total Hardness as CaCo3, Aluminium, Iron, Manganese, Lead.	


	specification (IS 10500-2012)	
8.	Exceeded Parameters	Total Dissolved solids, Nickel, Sulphate, Total Hardness as CaCo ₃ , Calcium
9.	Inference	The standard of Nickel is 0.02 mg/L, as per the report of analysis Nickel is 0.108 mg/L. The standard of Total Dissolved solids is 500 mg/L, as per the report of analysis Total Dissolved solids is 678 mg/L. The standard of Sulphate is 200 mg/L, as per the report of analysis Total Dissolved solids is 209 mg/L. The standard of Total Hardness as CaCo ₃ is 200 mg/L, as per the report of analysis Total Hardness as CaCo ₃ is 298 mg/L The standard of Calcium is 75 mg/L, as per the report of analysis Calcium is 79 mg/L The quality of the water sample is within the standards except the above parameters. The water is not severely contaminated.
10.	Reference	Enclosed test report

Comparison - 16

As per the study report 'Powering Pollution:

1	Name of the Location	Vellankulam
2	Identification No	R1-L18
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Zinc
5	Quantification	Significantly Contaminated
6	Risk Mentioned in the report	The borewell at Vellankulam (R1-L18) was also found to be contaminated with high levels of Zinc. People who use this water for drinking have been complaining about kidney ailments.
7	Page No.	49

The TNPCB committee has collected the Bore well Water sample and the inference based on the analysis report furnished by CUBE Environmental laboratory, IIT Madras is detailed below:

1.	Name of the Location	At Block-22 Pump House(Jawahar College)	
2.	Sample Code	19	
3.	Sample Nature	Bore Well	
4.	Latitude & Longitude	Lat : 11.611015 Lon: 79.465224	
5.	Date & Time of Sample collection	11.08.2023 at 05.15 pm	


6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo ₃ , Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD	
7.	Parameters within the limit of prescribed drinking water specification (IS 10500-2012)	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Arsenic, Chromium, Mercury, Selenium, Boron, Calcium, Magnesium, Sulphide, Total Alkalinity, Sodium, Potassium, BOD & COD, Total Hardness as CaCo ₃ , Aluminium, Iron, Manganese, Lead	
8.	Exceeded Parameters	Nickel.	
9.	Inference	The standard of Nickel is 0.02 mg/L, as per the report of analysis Nickel is 0.044 mg/L. The quality of the water sample is within the standards except the above parameters. The water is not severely contaminated.	
10.	Reference	Enclosed test report	

Comparison - 17

As per the study report 'Powering Pollution:

1	Name of the Location	Iyyan Lake
2	Identification No	R1-L20
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Aluminium, Nickel
5	Quantification	Significantly Contaminated
6	Risk Mentioned in the report	Nil
7	Page No.	46

The TNPCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental laboratory, IIT Madras is detailed below:

1.	Name of the Location	Iyyan Lake	
2.	Sample Code	22	
3.	Sample type	Surface Water	
4.	Latitude & Longitude	Lat :11.557013 Long : 79.562686	
5.	Date & Time of Sample collection	16.08.2023 at 1.38 PM	


6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo3, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD
7.	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity, Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD
8.	Exceeded Parameters	Nil
9.	Inference	The quality of the water sample is within the standards prescribed by the Board.
10.	Reference	Enclosed test report

Comparison - 18

As per the study report 'Powering Pollution:

1	Name of the Location	Pudukuppam Village
2	Identification No	R1-L21
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Total Hardness, Total Alkalinity, TDS
5	Quantification	Some Contamination
6	Risk Mentioned in the report	The water from the borewell at Pudukuppam Village, close to the ITPCL power plant (R1-L21) was found to be contaminated with hardness, alkalinity and TDS exceeding the limits. Other contaminants were found within limits. During the visit, local people had said that the groundwater has been contaminated since the plant came up. They have stopped drinking groundwater, due to contamination, and are now buying water for cooking and drinking water. The hardness, TDS and alkalinity shown in the test may be a factor making it unsuitable for drinking and cooking. Regular testing from time to time would be useful here.
7	Page No.	69

The TNPCB committee has collected the Bore well Water sample and the inference based on the analysis report furnished by CUBE Environmental laboratory , IIT Madras is detailed below:

1.	Name of the Location	Vedhavan House, Pudukkuppam Village	
2.	Sample Code	3	
3.	Sample Nature	Bore Well	
4.	Latitude & Longitude	Lat:11.523577 Lon:79.762972	
5.	Date & Time of Sample collection	16.08.2023 at 10.12 AM	
6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo3, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD	
7.	Parameters within the limit of prescribed drinking water specification (IS 10500-2012)	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo3, Calcium, Magnesium, Manganese, Sulphide, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD, Aluminium	
8.	Exceeded Parameters	Nil	
9.	Inference	The quality of the water sample is within the standards.	
10.	Reference	Enclosed test report	

Comparison - 19

As per the study report 'Powering Pollution:

1	Name of the Location	Pudukkuppam Village – Pipe Water
2	Identification No	R1-L22
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Total Hardness, Total Alkalinity, Calcium
5	Quantification	Some Contamination
6	Risk Mentioned in the report	The same village, Pudukkuppam also has piped water supply that brings water from Neyveli. We tested this water (R1-L22) and found it was only mildly contaminated with a high value of hardness. The local people said that they get piped water from Neyveli 2 days a week but it's not too good for drinking. Also, it is unreliable. Testing shows it to be hard water, Regular testing from time to time would be useful here.
7	Page No.	69

The TNPCB committee has collected the Pipe Water sample and the inference based on the analysis report furnished by CUBE Environmental laboratory , IIT Madras is detailed below:

1.	Name of the Location	Pudukuppam Village	
2.	Sample Code	4	
3.	Sample Nature	Pipe Water	
4.	Latitude & Longitude	Lat: 11.525248 Lon: 79.762342	
5.	Date & Time of Sample collection	16.08.2023 at 10.16 AM	
6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo3, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD	
7.	Parameters within the limit of prescribed drinking water specification (IS 10500-2012)	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo3, Calcium, Magnesium, Manganese, Sulphide, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD, Aluminium	
8.	Exceeded Parameters	Nil	
9.	Inference	The quality of the water sample is within the standards.	
10.	Reference	Enclosed test report	


Comparison - 20

As per the study report 'Powering Pollution:

1	Name of the Location	Karikuppam Village Fish Pond
2	Identification No	R1-L23
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Total Hardness, Total Alkalinity, TDS, Fluoride, Iron, Calcium, Magnesium
5	Quantification	Seriously contaminated

6	Risk Mentioned in the report	The water from the Karikuppam Village Fish Pond (R1- L23) was found to be seriously contaminated, with turbidity, hardness, alkalinity, TDS, Iron, Fluoride, Magnesium and Calcium exceeding the limits. Now, the people have stopped using the water from this pond for drinking due to its bad quality, but continue to use it for washing, bathing, fishing, etc.
7	Page No.	69


The TNPCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental laboratory , IIT Madras is detailed below:

1.	Name of the Location	Karikuppam Village Fish Pond	
2.	Sample code	2	
3.	Sample type	Surface water	
4.	Latitude & Longitude	Lat: 11.516401 Lon: 79.74471	
5.	Date & Time of Sample collection	16.08.2023 at 10.00 AM	
6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo3, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD	
7.	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity ,Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD	
8.	Exceeded Parameters	Nil	
9.	Inference	The quality of the water sample is within the standards prescribed by the Board.	
10.	Reference	Enclosed test report	

Comparison - 21**As per the study report 'Powering Pollution:**

1	Name of the Location	Canal near the Thermal Power Plant (water discharge from the plant time to time)
2	Identification No	R1-L25
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Total Hardness, Chloride, Total Alkalinity, Fluoride, Magnesium, Boron, TDS, Iron,
5	Quantification	Significantly contaminated
6	Risk Mentioned in the report	Water sample was also collected from a canal near the ITPCL Thermal Power Plant (where water is discharged from the plant from time to time) (R1-L25). This was found to be contaminated with turbidity, high hardness, chlorides, Iron, Fluoride, Magnesium and Boron. The water from this canal comes from upstream but water from ITPCL TPS is discharged into this canal from time to time. It appears that this is mostly storm water discharge but local people have reported fish kills during the ITPCL discharges. Ideally, water should be tested on the occasion when the power plant water is discharged into this canal to test for any contamination from TPS. At the time of testing, there was no discharge from TPS.
7	Page No.	69

The TNPCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental laboratory , IIT Madras is detailed below:

1.	Name of the Location	Buckingham Canal near the Thermal Power Plant	 <p>GP7R+X3M, Puduchattiram Main Rd, Tamil Nadu 605 India</p> <p>Latitude 11.515481666666668° Longitude 79.740285° Local 10:43:47 AM Altitude 5 m GMT 05:13:47 AM Wednesday, 16.08.2023</p>
2.	Sample Code	5	
3.	Sample Nature	Surface water	
4.	Latitude & Longitude	Lat: 11.51545 Lon: 79.740301	
5.	Date & Time of Sample collection	16.08.2023 at 10.43 AM	
6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo3, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD	


7.	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity ,Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD
8.	Exceeded Parameters	Nil
9.	Inference	The quality of the water sample is within the standards prescribed by the Board.
10.	Reference	Enclosed test report

Comparison - 22

As per the study report 'Powering Pollution:

1	Name of the Location	Karikuppam Village
2	Identification No	R1-L26
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Total Hardness, Alkalinity, TDS, Fluoride, Iron, Calcium, Magnesium, Manganese,
5	Quantification	Seriously contaminated
6	Risk Mentioned in the report	Nil
7	Page No.	46

The TNPCB committee has collected the Hand Pump Water sample and the inference based on the analysis report furnished by CUBE Environmental laboratory , IIT Madras is detailed below:

1.	Name of the Location	Karikuppam Village	
2.	Sample Code	1	
3.	Sample Nature	Hand Pump water	
4.	Latitude & Longitude	Lat: 11.515833 Lon: 79.742616	
5.	Date & Time of Sample collection	16.08.2023 at 09.53 AM	
6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo3, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD	



Cuddalore, Tamil Nadu, India
GP7R+X3M, Puduchattiram, East Coast Rd, Ta
India
Lat 11.515833°
Long 79.742616°

7.	Parameters within the limit of prescribed drinking water specification (IS 10500-2012)	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness as CaCo ₃ , Calcium, Magnesium, Aluminium, Sulphide, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD, Manganese, Iron
8.	Exceeded Parameters	Nil
9.	Inference	The quality of the water sample is within the standards prescribed by the Board.
10.	Reference	Enclosed test report


Comparison - 23

REPORT OF ANALYSIS OF WATER SAMPLE:

As per the study report 'Powering Pollution:

1	Name of the Location	Mine I outlet Veenageni
2	Identification No	R2-S1
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity
5	Quantification	No contamination
6	Risk Mentioned in the report	One of these (R2-S1) was found to be uncontaminated, even though it is a stream close to the Mine 1. Local people say that this may be spring water coming out from the mine.
7	Page No.	49

The TNPCCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental laboratory, IIT Madras is detailed below:

1	Name of the Location	Mine I Outlet Veenageni	
2	Sample Code	20	
3	Sample Nature	Surface Water	
4	Latitude & Longitude	11.550328 & 79.532898	
5	Date & Time of Sample collection	11.08.2023 & 5.45P.M	
6	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury,	

		Selenium, Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD
7	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity ,Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD
8	Exceeded Parameters	Nil
9	Inference	The quality of the water sample is within the standards prescribed by the Board.
10	Reference	Enclosed test report

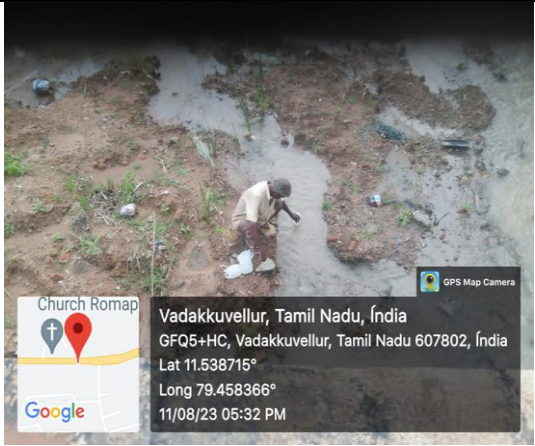
Comparison - 24

As per the study report 'Powering Pollution:

1	Name of the Location	Ramapuri Matharakuppam vadakkuvellur
2	Identification No	R2 S2
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Total hardness, TSS Chloride, sulphate ,TDS, Mercury Selenium, calcium, Magnesium
5	Quantification	Significantly Contaminated
6	Risk Mentioned in the report	The location R2-S2, where a mix of effluents coming out from the power plants and possibly also mine discharges come together, which was also tested in round one as R1-L5, confirmed that serious contamination continues. This time, it violated the legally binding limits for Mercury, and also showed high levels of Selenium.
7	Page No.	48

The TNPCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental laboratory , IIT Madras is detailed below:

1	Name of the Location	Romapuri Matharakuppam vadakkuvellur	
2	Sample Code	13	
3	Sample nature	Surface Water	
4	Latitude & Longitude	11.538715 & 79.458366	

5	Date & Time of Sample collection	11.08.2023 & 5.36 PM	
6	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD	
7	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity, Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD	
8	Exceeded Parameters	Nil	
9	Inference	All parameters are within limit as prescribed by the Board.	
10	Reference	Enclosed test report	


Comparison - 25

As per the study report 'Powering Pollution:

1	Name of the Location	Vadakkuvellur Ammeri
2	Identification No	R2 S3
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Total hardness, TSS, Selenium
5	Quantification	Significantly Contaminated
6	Risk Mentioned in the report	The stream near Ammeri, Vadaku Vellur (R2-S3) was found to be contaminated with high levels of Selenium. People here use this water for irrigation, and had explicitly mentioned that they had skin problems, and reduced agricultural yield, both of which they attribute to the contamination of this water.
7	Page No.	49

The TNPCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental laboratory, IIT Madras is detailed below:

1	Name of the Location	Vadakkuvellur Pond near Sivan koil	
2	Sample code	14	


3	Sample nature	Surface Water	
4	Latitude & Longitude	11.549235 & 79.459217	
5	Date & Time of Sample collection	11.08.2023 & 4.50 PM	
6	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD	
7	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity, Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD	
8	Exceeded Parameters	Nil	
9	Inference	All parameters are within limit as prescribed by the Board.	
10	Reference	Enclosed test report	

Comparison - 26

As per the study report 'Powering Pollution:

1	Name of the Location	NNTPS Outlet near Thropathi amman temple
2	Identification No	R2-S 5
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Hardness Mercury Selenium Calcium Magnesium
5	Quantification	Seriously Contaminated
6	Risk Mentioned in the report	The discharge from the NNTPS outlet near Throupathi Ammeri (R2-S5) is seriously contaminated, with low pH (acidic) and high turbidity, Mercury, Selenium, Magnesium and Calcium. Water from there is used for irrigation by Melakuppam, Ammeri, Thoppilikuppam, Punangurichi villages.
7	Page No.	49

The TNPCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental laboratory , IIT Madras is detailed below:

1	Name of the Location	Discharge from NNTPS	
2	Sample Code	2	
3	Sample Nature	Surface Water	
4	Latitude & Longitude	11.579525 & 79.461002	
5	Date & Time of Sample collection	11.08.2023 & 12.45 P.M	
6	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD	
7	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity ,Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD	
8	Exceeded Parameters	Nil	
9	Inference	All parameters are within limit as prescribed by the Board.	
10	Reference	Enclosed test report	


Comparison - 27

As per the study report 'Powering Pollution:

1	Name of the Location	Central store
2	Identification No	R2-S 6
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Hardness, Mercury ,Selenium, Chloride, TDS, TSS, Mercury Calcium Magnesium.
5	Quantification	Seriously Contaminated
6	Risk Mentioned in the report	The water body outside the Central Stores boundary near NLC Thermal 1 EXP and NNTPS (R2-S6), is seriously contaminated with very high levels of TSS, Mercury, Selenium, Calcium and

		Magnesium. Ash is also dumped near this location and this could be a reason for the high Mercury and Selenium apart from contaminants picked up from within plant premises. This water goes to Walajah lake, where 12 villages on the way use the water for irrigation. After going to Walajah lake there are more than 50 villages that use Walajah lake water for irrigation.
7	Page No.	49


The TNPCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental laboratory , IIT Madras is detailed below:

1	Name of the Location	Neyveli PCS store Discharge	
2	Sample Code	1	
3	Sample nature	Surface Water	
4	Latitude & Longitude	11.596363 & 79.465716	
5	Date & Time of Sample collection	11.08.2023 & 12:30 A.M	
6	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD	
7	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity ,Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD	
8	Exceeded Parameters	Nil	
9	Inference	All parameters are within limit as prescribed by the Board.	
10	Reference	Enclosed test report	

Comparison - 28**As per the study report 'Powering Pollution:**

1	Name of the Location	TPS Outlet Karuvetti
2	Identification No	R2-S 7
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Hardness, TSS, Selenium, Calcium, Magnesium.
5	Quantification	Seriously Contaminated
6	Risk Mentioned in the report	Nil
7	Page No.	Nil


The TNPCB committee has collected the treated effluent sample and the inference based on the analysis report furnished by CUBE Environmental laboratory , IIT Madras is detailed below:

1	Name of the Location	Discharge from TPS I Expansion Karuvetti Village	
2	Sample Code	29	
3	Sample nature	Waste water Effluent	
4	Latitude & Longitude	11.573758 & 79.457836	
5	Date & Time of Sample collection	16.08.2023 & 3.30 P.M	
6	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD	
7	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity ,Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD	
8	Exceeded Parameters	Nil	
9	Inference	All parameters are within limit as prescribed by the Board.	
10	Reference		

Comparison - 29**As per the study report 'Powering Pollution:**

1	Name of the Location	Tholkappiar Nagar
2	Identification No	R2-S 8
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Mercury Selenium
5	Quantification	Seriously Contaminated
6	Risk Mentioned in the report	The sample taken from the borewell at Tholkappiar Nagar, Vadakuvellur (Location R2-S8) showed mercury levels around 250 times higher than the limit. People in the location drink this bore water. There are many kidney patients, people affected with lung disease, cancer patients and skin diseases among the community in Tholkappiar Nagar.
7	Page No.	13 and 47

The TNPCB committee has collected the Bore well Water sample and the inference based on the analysis report furnished by CUBE Environmental laboratory , IIT Madras is detailed below:

1	Name of the Location	Tholkappaiair nagar	 <p>GPS Map Camera Lite</p> <p>GFX7+285, Ammeri, Vadakuvellur, Tamil Nadu 607802, India</p> <p>Latitude 11.5479011°</p> <p>Longitude 79.4645875°</p> <p>Local 11:41:14 AM GMT 06:11:14 AM</p> <p>Altitude 34 meters Wednesday, 16.08.2023</p>
2	Sample Code	24	
3	Sample Nature	Bore Well	
4	Latitude & Longitude	11.54687 & 79.46910	
5	Date & Time of Sample collection	16.08.2023 & 12.41P.M	
6	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD	
7	Parameters within the limit of prescribed drinking water specification (IS 10500-2012)	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD	


8	Exceeded Parameters	Nickel (0.024/0.02)
9	Inference	All parameter are within the limits as per drinking water standards IS 10500-2012
10	Reference	Enclosed test report (Annexure 26)

Comparison - 30

As per the study report 'Powering Pollution:

1	Name of the Location	Muppaneri
2	Identification No	R2-S 9
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Hardness, TSS, Selenium
5	Quantification	Significantly Contaminated
6	Risk Mentioned in the report	Nil
7	Page No.	13 and 47

The TNPCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental laboratory, IIT Madras is detailed below:

1	Name of the Location	Muappaneri Village	 <p>Iyappan Kovil St, Tamil Nadu 607802, India Latitude 11.552566666666667° Longitude 79.45970666666668° Local 11:26:38 AM Altitude 38 meters GMT 05:56:38 AM Wednesday, 16.08.2023</p>
2	Sample Code	25	
3	Sample nature	Surface Water	
4	Latitude & Longitude	11.5522566 & 79.459706	
5	Date & Time of Sample collection	16.08.2023 & 12.26 P.M	
6	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD	
7	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity ,Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD	


8	Exceeded Parameters	Nil
9	Inference	All parameters are within limit as prescribed by the Board.
10	Reference	Enclosed test report

Comparison - 31

As per the study report 'Powering Pollution:

1	Name of the Location	TPS 2 outlet
2	Identification No	R2-S 10
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Turbidity, Hardness TDS TSS Mercury Selenium Calcium Magnesium
5	Quantification	Seriously Contaminated
6	Risk Mentioned in the report	Nil
7	Page No.	13 and 47

The TNPCB committee has collected the Surface Water sample and the inference based on the analysis report furnished by CUBE Environmental laboratory , IIT Madras is detailed below:

1	Name of the Location	Discharge from Neyveli TPS II	
2	Sample Code	3	
2	Sample nature	Surface Water	
3	Latitude & Longitude	11.561055 & 79.452025	
4	Date & Time of Sample collection	11.08.2023 & 12.55 P.M	
1	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD & COD	


6	Parameters within the limit prescribed for on land for irrigation by TNPCB and IS 2296 (Class E)	pH, Conductivity ,Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD & COD
7	Exceeded Parameters	Nil
8	Inference	All parameters are within limit as prescribed by the Board.
9	Reference	Enclosed test report

Comparison - 32

REPORT OF ANALYSIS OF SOIL SAMPLE: As per the study report 'Powering Pollution:

1	Name of the Location	Paddy field within in one kilometer from NNTPS stack
2	Identification No	R1-L 9
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Nickel Zinc Copper
5	Quantification	Seriously Contaminated
6	Risk Mentioned in the report	location R1-L9, a paddy field within one kilometer from the stack of NNTPS, was found to have high levels of Nickel, Zinc and Copper. Ash is being deposited on the soil and crops in the field and this could be the source of the metal contaminating the soil. Local villagers say that ash deposition and polluted water used for irrigation is the biggest reason for crop failure/reduced yield/ loss of soil fertility that they are experiencing.
7	Page No.	49

The TNPCB committee has collected the Soil sample and the inference based on the analysis report furnished by CUBE , Environmental Laboratory , IIT Madras is detailed below:

1.	Name of the Location	Paddy Filed within one kilometer from NNTPS Stack	
2.	Sample Code	12	
3.	Sample Nature	Soil	
4.	Latitude & Longitude	11.589208 79.446177	
5.	Date & Time of Sample collection	11.08.2023 & 3.43P.M	

6.	Parameters Analysed	pH,,Conductivity,Turbidity,Total dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel,Lead, Arsenic, Total Chromium, Mercury,Selenium,Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminum,Total Alkalinity, Iron, Pottasium, Sodium,BOD,COD and Moisture Content.	
7.	Reference for Heavy metals in soil	Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health	
8.	Inference	All heavy metals are within the limit	
9.	Reference	Enclosed test report	

Comparison - 33


REPORT OF ANALYSIS OF SOIL SAMPLE:

As per the study report 'Powering Pollution:

1	Name of the Location	Agriculture land near Ayyan Lake
2	Identification No	R1-L 11
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	pH (low), Total Chromium
5	Quantification	Seriously Contaminated
6	Risk Mentioned in the report	Location R1-L11, agricultural land near Iyyan Lake was also found to be seriously contaminated, with low pH, and high levels of Chromium. Local people informed the team that the water used for irrigating the field is coming from the mines
7	Page No.	49

The TNPCB committee has collected the Soil sample and the inference based on the analysis report furnished by CUBE , Environmental Laboratory , IIT Madras is detailed below:

1.	Name of the Location	Agriculture land near Ayyan Lake	
2.	Sample Code	21	
3.	Sample Nature	Soil	
4.	Latitude & Longitude	11.5543, 79.5625	
5.	Date & Time of Sample collection	16.08.2023 &12.48 P.M	
6.	Parameters Analysed	pH,,Conductivity,Turbidity, Total dissolved solids, Chlorides, Sulphate, Zinc,	

		Cadmium, Nickel, Lead, Arsenic, Total Chromium, Mercury, Selenium, Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminum, Total Alkalinity, Iron, Pottasium, Sodium, BOD, COD and Moisture Content.	
7.	Reference for Heavy metals in soil	Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health	
8.	Inference	All heavy metals are within the limit	
9.	Reference	Enclosed test report	

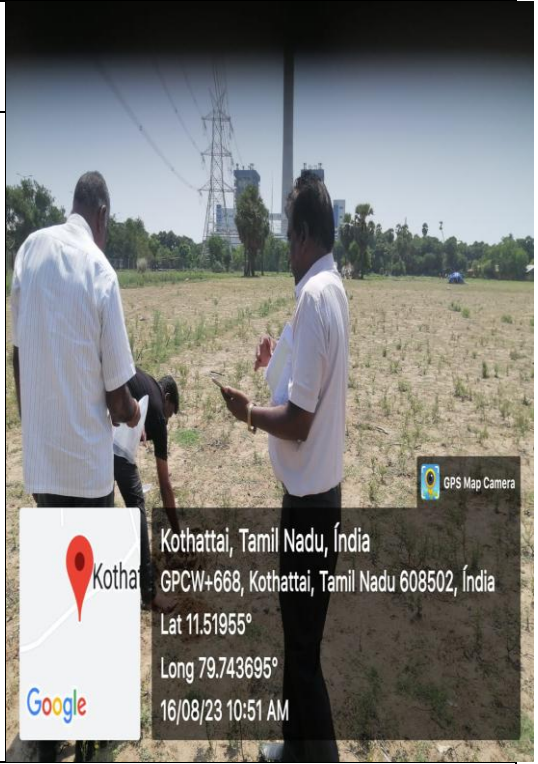
Comparison - 34

As per the study report 'Powering Pollution:

1	Name of the Location	Karrikuppam Village Agriculture Land near Thermal Power Plant
2	Identification No	R1-L 24
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Boron. Low Organic Carbon
5	Quantification	Seriously Contaminated
6	Risk Mentioned in the report	--
7	Page No.	46

The TNPCB committee has collected the Soil sample and the inference based on the analysis report furnished by CUBE , Environmental Laboratory , IIT Madras as detailed below:

1.	Name of the Location	Karrikuppam Village Agriculture Land near Thermal Power Plant	
2.	Sample Code	6	
3.	Sample Nature	Soil	
4.	Latitude & Longitude	11.51955, 79.743695	


5.	Date & Time of Sample collection	16.08.2023 & 10.51 A.M	
6.	Parameters Analysed	pH, Conductivity, Turbidity, Total dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Total Chromium, Mercury, Selenium, Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminum, Total Alkalinity, Iron, Pottasium, Sodium, BOD, COD and Moisture Content.	
7.	Reference for Heavy metals in soil	Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health	
8.	Inference	All heavy metals are within the limit	
9.	Reference	Enclosed test report	

Comparison - 35

As per the study report 'Powering Pollution:

1	Name of the Location	Karumbu Thottam Vadakkuvellur
2	Identification No	R2-S 4
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	Selenium
5	Quantification	Seriously Contaminated
6	Risk Mentioned in the report	Field at Vadakuvelur-Karumbu Thottam (R- S4) was found to have high levels of Selenium in the soil. As told by the local people, the sugarcane crop was burnt by the villagers because it was half grown in this soil. This may be because of high Selenium in the soil. Ash dust was also seen on the soil. Selenium can come from coal dust or ash. Boiler water plus water used to wash lignite is discharged here. Some part of uncooled boiler water is also directly discharged
7	Page No.	49

The TNPCB committee has collected the Soil sample and the inference based on the analysis report furnished by CUBE , Environmental Laboratory , IIT Madras as detailed below:

1.	Name of the Location	Karumbu Thottam Vadakkuvellur	
2.	Sample Code	15	
3.	Sample Nature	Soil	
4.	Latitude & Longitude	11.547806, 79.456759	
5.	Date & Time of Sample collection	11.08.2023 & 4.58 P.M	
6.	Parameters Analysed	pH,,Conductivity,Turbidity, Total dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel,Lead, Arsenic, Total Chromium, Mercury,Selenium,Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminum,Total Alkalinity, Iron, Pottasium, Sodium,BOD,COD and Moisture Content.	
7.	Reference for Heavy metals in soil	Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health	
8.	Inference	All heavy metals are within the limit	
9.	Reference	Enclosed test report	

Comparison - 36

As per the study report 'POWERing Pollution:

1	Name of the Location	Vadakkuvellur bypass
2	Identification No	R2-S 11
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	pH (high), Selenium
5	Quantification	Seriously Contaminated
6	Risk Mentioned in the report	The field near Vadakuvelur Bypass (R2-L11) had soils with low pH and seriously contaminated with high Selenium. Local people informed the team that lignite washed water from TPS 1 has resulted in no yield from the fields. Impact on yield may be due to Selenium and source of Selenium could be lignite washed water. Also, ash is being deposited on the fields and this may be a source of Selenium and also an additional cause of yield failure.
7	Page No.	49

The TNPCB committee has collected the Soil sample and the inference based on the analysis report furnished by CUBE , Environmental Laboratory , IIT Madras as detailed below:


1.	Name of the Location	Vadakkuvellur by pass	 <p>Vadaku kulakudi,lalpettai post,kaatumannarkovil taluk, GFW6+9WC, Vadakkuvellur, Tamil Nadu 607802, India</p> <p>Latitude 11.5464224° Longitude 79.462478°</p> <p>Local 12:08:24 PM Altitude 32 meters GMT 06:38:24 AM Wednesday, 16.08.2023</p>
2.	Sample Code	26	
3.	Sample Nature	Soil	
4.	Latitude & Longitude	11.546422, 79.462478	
5.	Date & Time of Sample collection	16.08.2023 & 12.08 P.M	
6.	Parameters Analysed	pH,,Conductivity,Turbidity,Total dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel,Lead, Arsenic, Total Chromium, Mercury,Selenium,Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminum,Total Alkalinity, Iron, Pottasium, Sodium,BOD,COD and Moisture Content.	
7.	Reference for Heavy metals in soil	1. Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health. 2. Dutch Standard for	
8.	Inference	The heavy metals are within the limit except Zinc(492.7/250 mg/kg) and Nickel (99.62/45 mg/kg)	
9.	Reference	Enclosed test report.	

Comparison - 37

As per the study report 'Powering Pollution:

1	Name of the Location	Palli Theru Vadakku Vellore near mine 1
2	Identification No	R2-S 11
3	Latitude & Longitude	Not Specified
4	Exceeded Parameters	--
5	Quantification	--
6	Risk Mentioned in the report	Location not considered in analysis as ash was found to be waste dumped from outside
7	Page No.	46

The TNPCB committee has collected the Soil sample and the inference based on the analysis report furnished by CUBE , Environmental Laboratory , IIT Madras as detailed below:

1.	Name of the Location	Pallitheru Vadakku Vellore	
2.	Sample Code	23	
3.	Sample Nature	Soil	
4.	Latitude & Longitude	11.5479011, 79.464587	
5.	Date & Time of Sample collection	16.08.2023 & 12.49P.M	
6.	Parameters Analysed	pH,,Conductivity,Turbidity,Total dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel,Lead, Arsenic, Total Chromium, Mercury,Selenium,Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminum,Total Alkalinity, Iron, Pottasium, Sodium,BOD,COD and Moisture Content.	<p>GFX7+285, Ammeri, Vadakkuvellur, Tamil Nadu 607802, India</p> <p>Latitude 11.5479011° Longitude 79.4645875°</p> <p>Local 11:49:03 AM Altitude 34 meters</p> <p>GMT 06:19:03 AM Wednesday, 16.08.2023</p>
7.	Reference for Heavy metals in Fly ash	Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health	
8.	Inference	All the parameters are within the limit	
9.	Reference	Enclosed test report.	

**REPORT OF ANALYSIS OF THE SOIL SAMPLE COLLECTED FORM WALAJAH
TANK EMBANKMENT**

Date of collection: 01.11.2023

Sample code : 1S

Location	Type of Sample
Walajah Tank Embankment	Soil

S. No	Test Parameters	Unit	Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (mg/kg)	TNPCB Committee Result of Walajah Tank Embankment Sample
1.	pH at 25°C	-	-	6.98
2.	Conductivity at 25°C	µs/cm	-	39
3.	Moisture	%	-	3.38
4.	Zinc as Zn	mg/kg	250	10.2
5.	Cadmium as Cd	mg/kg	1.4	BLQ[LOQ:1.0]
6.	Nickel as Ni	mg/kg	45	45.8
7.	Lead as Pb	mg/kg	70	46.6
8.	Arsenic as As	mg/kg	12	BLQ[LOQ:1.0]
9.	Chromium as Cr	mg/kg	64	1.29
10.	Mercury as Hg	mg/kg	6.6	BLQ[LOQ:0.04]
11.	Selenium as Se	mg/kg	1.0	1.06
12.	Boron as B	mg/kg	-	3.18
13.	Calcium as Ca	mg/kg	-	38.8
14.	Magnesium as Mg	mg/kg	-	94.8
15.	Manganese as Mn	mg/kg	-	112
16.	Aluminium as Al	mg/kg	-	13380
17.	Iron as Fe	mg/kg	-	1052
18.	Potassium as K	mg/kg	-	18
19.	Sodium as Na	mg/kg	-	22
20.	Chlorides as Cl	mg/kg	-	97.3
21.	Total Soluble Sulphate as SO ₄	%	-	BLQ[LOQ:0.01]
22.	Total Hardness as CaCO ₃	mg/kg	-	487
23.	Sulphide	mg/kg	-	BLQ[LOQ:1.0]
24.	Total Alkalinity as CaCO ₃	mg/kg	-	149

Inference:

Exceedance of Nickel is observed when compared with the Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health. Traces of Heavy metals such as Aluminium, Nickel, Lead, Chromium, Selenium and Boron have been detected. While, Concentration of Aluminum and Iron are higher.



**REPORT OF ANALYSIS OF THE SOIL SAMPLE COLLECTED FROM
PARAVANAR RIVER BANK**

Date of collection: 01.11.2023

Sample code : 2S

Location	Type of Sample
Walajah Tank Embankment	Paravanar River Bank

S. No	Test Parameters	Unit	Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (mg/kg)	TNPCB Committee Result of Paravanar River Bank Sample
1.	pH at 25°C	-	-	8.21
2.	Conductivity at 25°C	µs/cm	-	284
3.	Moisture	%	-	21.43
4.	Zinc as Zn	mg/kg	250	52.6
5.	Cadmium as Cd	mg/kg	1.4	BLQ[LOQ:1.0]
6.	Nickel as Ni	mg/kg	45	86.6
7.	Lead as Pb	mg/kg	70	50.3
8.	Arsenic as As	mg/kg	12	BLQ[LOQ:1.0]
9.	Chromium as Cr	mg/kg	64	24.7
10.	Mercury as Hg	mg/kg	6.6	BLQ[LOQ:0.04]
11.	Selenium as Se	mg/kg	1.0	3.35
12.	Boron as B	mg/kg	-	14.84
13.	Calcium as Ca	mg/kg	-	154
14.	Magnesium as Mg	mg/kg	-	93.8
15.	Manganese as Mn	mg/kg	-	531.3
16.	Aluminium as Al	mg/kg	-	67909
17.	Iron as Fe	mg/kg	-	22406
18.	Potassium as K	mg/kg	-	8
19.	Sodium as Na	mg/kg	-	12
20.	Chlorides as Cl	mg/kg	-	48.1
21.	Total Soluble Sulphate as SO ₄	%	-	BLQ[LOQ:0.01]
22.	Total Hardness as CaCO ₃	mg/kg	-	771
23.	Sulphide	mg/kg	-	BLQ[LOQ:1.0]
24.	Total Alkalinity as CaCO ₃	mg/kg	-	246

Inference:

Exceedance of Nickel is observed when compared with the Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health. Traces of Heavy metals such as Aluminium, Nickel, Lead, Chromium, Selenium and Boron have been detected. While, Concentration of Boron and Nickel are higher.



REPORT OF ANALYSIS OF TREATED SEWAGE SAMPLE COLLECTED FROM
M/s. MODERN SEWAGE TREATMENT PLANT

Date of collection: 01.11.2023

Sample code : 3

Location	Type of Sample
Walajah Tank Embankment	Treated Sewage

S. No	Test Parameters	TNPCB standards	TNPCB Committee Result of MSTP treated outlet Sample
1.	pH	5.5 – 9.0	8.47
2.	Conductivity (µs/cm)	-	1119
3.	TDS (mg/L)	-	692
4.	Turbidity (NTU)	-	120
5.	Chloride as Cl (mg/L)	-	121
6.	Sulphate as So4 (mg/L)	-	254
7.	Zinc as Zn (mg/L)	-	0.06
8.	Cadmium as Cd (mg/L)	-	BLQ[LOQ:0.02]
9.	Nickel as Ni (mg/L)	-	0.06
10.	Lead as Pb (mg/L)	-	0.78
11.	Arsenic as As (mg/L)	-	BLQ[LOQ:0.01]
12.	Total Chromium as Cr (mg/L)	-	BLQ[LOQ:0.01]
13.	Mercury as Hg (mg/L)	-	BLQ[LOQ:0.00 1]
14.	Selenium as Se (mg/L)	-	BLQ[LOQ:0.00 5]
15.	Boron as B (mg/L)	-	BLQ[LOQ:0.00 5]
16.	Total Hardness as CaCo3(mg/L)	-	349
17.	Calcium as Ca (mg/L)	-	64.4
18.	Magnesium as Mg (mg/L)	-	45.7
19.	Manganese as Mn (mg/L)	-	0.694
20.	Sulphide as H2S (mg/L)	-	BLQ[LOQ:0.02]
21.	Aluminium as Al (mg/L)	-	0.138
22.	Total Alkalinity as CaCo3 (mg/L)	-	215
23.	Iron as Fe (mg/L)	-	0.764
24.	Sodium as Na (mg/L)	-	58
25.	Potassium as K (mg/L)	-	16

S. No	Test Parameters	TNPCB standards	TNPCB Committee Result of MSTP treated outlet Sample
26.	BOD (mg/L)	30	4.6
27.	COD (mg/L)	150	15
28.	Colour (Hazen)	-	<1.0
29.	Odour	-	Disagreeable
30.	Total Suspended Solids at 105deg C (mg/L)	50	56
31.	Particulate Size of Suspended Solids (microns)	-	Passes through 850 micron IS sieve
32.	Residual Free Chlorine (mg/L)	-	BLQ[LOQ:0.01]
33.	Oil and Grease	-	BLQ[LOQ:4.0]
34.	Fluoride as F (mg/L)	-	0.93
35.	Hexavalent Chromium (mg/L)	-	BLQ[LOQ:0.05]
36.	Copper as Cu (mg/L)	-	BLQ[LOQ:0.01]
37.	Vanadium as V (mg/L)	-	0.786
38.	Total Kjeldahl Nitrogen (mg/L)	-	BLQ[LOQ:1.0]
39.	Ammoniacal Nitrogen (mg/L)	-	BLQ[LOQ:0.5]
40.	Nitrate as NO3 (mg/L)	-	BLQ[LOQ:0.2]
41.	Phenolic Compounds (mg/L)	-	BLQ[LOQ:1.0]
42.	Cyanide as CN (mg/L)	-	BLQ[LOQ:1.0]
43.	Ammonia as NH3 (mg/L)	-	BLQ[LOQ:0.5]
44.			
45.	Phosphates as PO4	-	BLQ[LOQ:0.2]

Inference:

All parameters are within the standards prescribed by the Board except Total suspended solids



**REPORT OF LOCATION WISE IMPACT OF SAMPLES COLLECTED BY TNPCB
AT VADAKKUVELLORE**

To find the status of soil and water quality at specific location Vadakkuvellore, result of analysis of all soil and surface water samples collected at the entire zone are completely studied and comparison has been made. Location wise impact was assessed with the comparative report.

S.NO	Parameters	Soil Standard (mg/kg)	Surface water standard	Vadakkuvellore By pass (26)- Soil (mg/kg)	Pallithuru, Vadakkuvellore (23)- Soil (mg/kg)	Vadakkuvellore Sugarcane field (15) - Soil (mg/kg)	Vadakkuvellore pond near Sivan Kovil (14)- Surface water (mg/l)	Muppaneri (25)- Surface water (mg/l)	Romapuri, Mandarakuppam-Vadakkuvellore (13)- Surface water (mg/l)
1.	pH	-	8.5	6.77	5.89	7.81	7.65	7.43	7.52
2.	Conductivity	-	2250	63.6	57.6	168	1387	863	1251
3.	Moisture (%)	-	-	11.6	14.2	28.0	-	-	-
4.	TDS (NTU)	-	2100	-	-	-	982	575	850
5.	Turbidity	-	-	-	-	-	1.0	29.3	167
6.	Chloride as Cl	-	600	-	-	-	255	113	169
7.	Sulphate as So ₄	-	1000	-	-	-	360	230	369
8.	Zinc as Zn	250	-	12.37	7.36	492.7	0.008	0.006	0.014
9.	Cadmium as Cd	1.4	-	BLQ	BLQ	1.25	BLQ	BLQ	BLQ
10.	Nickel as Ni	45	-	13.94	7.47	99.62	0.011	BLQ	BLQ
11.	Lead as Pb	70	-	20.32	10.84	8.80	BLQ	BLQ	BLQ
12.	Arsenic as As	12	-	3.60	2.11	BLQ	BLQ	BLQ	BLQ
13.	Total Chromium as Cr	64	-	7.62	4.70	15.50	BLQ	BLQ	BLQ
14.	Mercury as Hg	6.6	-	<0.04	BLQ	BLQ	BLQ	BLQ	BLQ
15.	Selenium as Se	1.0	-	<0.5	BLQ	BLQ	BLQ	BLQ	BLQ
16.	Boron as B	-	2	<0.5	BLQ	6.26	0.523	0.182	0.515
17.	Total Hardness as CaCO ₃	-	-	-	-	-	395	250	387
18.	Calcium as Ca	-	-	2310	999.6	1977.3	113	66	115

S.NO	Parameters	Soil Standard (mg/kg)	Surface water standard	Vadakk u Vellore By pass (26)- Soil (mg/kg)	Pallithe ru, Vadakk u Vellore (23)- Soil (mg/kg)	Vadakk u Vellore Sugarcane field (15) - Soil (mg/kg)	Vadakku Vellore pond near Sivan Kovil (14)- Surface water (mg/l)	Muppan eri (25)- Surface water (mg/l)	Romapuri, Mandarakupam-Vadaku Vellore (13)- Surface water (mg/l)
19.	Magnesium as Mg	-	-	357	194.7	344.9	27	20.4	24
20.	Manganese as Mn	-	--	135	56.7	241.4	0.012	0.043	0.029
21.	Sulphide as H ₂ S	-	-	<1.0	BLQ	BLQ	BLQ	BLQ	BLQ
22.	Aluminium as Al	-	-	3183	1968	2775.5	0.023	0.019	0.544
23.	Total Alkalinity as CaCO ₃	-	-	399	1968	891	79.2	45	54.5
24.	Iron as Fe	-	-	1457	1666	1325.7	BLQ	0.76	2.62
25.	Sodium as Na	-	-	22.37	57.75	399.8	134	91.8	89
26.	Potassium as K	-	-	64.41	28.17	90.6	7.2	3.6	7.2
27.	BOD	-	-	-	-	-	2	4.2	BLQ
28.	COD	-	-	-	-	-	8	29	8.0

**REPORT OF LOCATION WISE IMPACT OF SAMPLES COLLECTED BY TNPCB
ATAADHANDARKOLLAI**

To find the status of soil and water quality at specific location Aadhandarkollai, result of analysis of all soil and surface water samples collected at the entire zone are completely studied and comparison has been made. Location wise impact was assessed with the comparative report.

S.NO	Parameters	Soil (mg/kg)	Surface water (mg/l)	Paddy field near NNTP S stack (12)- Soil (mg/kg)	Coal Mine discharge from Mine I (10)- Surface water (mg/l)	Direct Discharge from TPS I (11) – Surface water (mg/l)	Discharge from NNTP S (2)- Surface water (mg/l)	TPS I expansion – Effluent outlet at the boundary of the plant (27) - Surface water (mg/l)	Mine I Seepage Lake (34)- Surface water (mg/l)
1.	pH	-	8.5	5.22	7.35	7.29	6.60	8.4	6.33
2.	Conductivity (µs/cm)	-	2250	55.8	1052	497	742	1154	463
3.	Moisture (%)	-	-	9.49					
4.	TDS	-	2100	-	624	266	458	818	296
5.	Turbidity (NTU)	-	-	-	1	4	41	22.8	78.2
6.	Chloride as Cl	-	600	-	18.9	14.1	141	132	52.0
7.	Sulphate as So ₄	-	1000	-	234	94	230	382	98
8.	Zinc as Zn	250	-	9.35	0.029	0.065	0.124	0.050	0.041
9.	Cadmium as Cd	1.4	-	BLQ	BLQ	BLQ	< 0.005	BLQ	BLQ
10.	Nickel as Ni	45	-	2.20	0.044	0.075	0.117	0.060	0.036
11.	Lead as Pb	70	-	9.58	BLQ	BLQ	< 0.005	BLQ	BLQ
12.	Arsenic as As	12	-	BLQ	BLQ	BLQ	< 0.005	BLQ	BLQ
13.	Total Chromium as Cr	64	-	BLQ	BLQ	BLQ	< 0.005	BLQ	BLQ
14.	Mercury as Hg	6.6	-	BLQ	BLQ	BLQ	< 0.001	BLQ	BLQ
15.	Selenium as Se	1.0	-	BLQ	BLQ	BLQ	< 0.005	BLQ	BLQ
16.	Boron as B	-	2	BLQ	0.552	0.528	0.418	0.344	0.375

S.NO	Parameters	Soil (mg/kg)	Surface water (mg/l)	Paddy field near NNTP S stack (12)- Soil (mg/kg)	Coal Mine discharge from Mine I (10)- Surface water (mg/l)	Direct Discharge from TPS I (11) – Surface water (mg/l)	Discharge from NNTP S (2)- Surface water (mg/l)	TPS I expansion – Effluent outlet at the boundary of the plant (27) - Surface water (mg/l)	Mine I Seepage Lake (34)- Surface water (mg/l)
17.	Total Hardness as CaCO ₃	-	-	6363	468	193	685	411	143
18.	Calcium as Ca	-	-	311.3	136	52	169	115	37
19.	Magnesium as Mg	-	-	46.28	31	15	63	30	12
20.	Manganese as Mn	-	--	70.75	0.059	0.016	6.68	0.031	0.066
21.	Sulphide as H ₂ S	-	-	BLQ	BLQ	BLQ	<0.02	BLQ	BLQ
22.	Aluminium as Al	-	-	604.54	0.382	0.043	0.474	0.376	0.24
23.	Total Alkalinity as CaCO ₃	-	-	190	24.8	29.7	24.8	25	29.7
24.	Iron as Fe	-	-	745.6	0.31	0.21	5.3	0.44	0.71
25.	Sodium as Na	-	-	14.26	118	42	324	105	24.5
26.	Potassium as K	-	-	41.84	3.4	6.2	8.4	4.3	BLQ
27.	BOD	-	-		3	BLQ	10	BLQ	BLQ

**REPORT OF LOCATION WISE IMPACT OF SAMPLES COLLECTED BY TNPCB
AT KARIKUPPAM VILLAGE**


To find the status of soil and water quality at specific location Karikuppam Village, result of analysis of all soil and surface water samples collected at the entire zone are completely studied and comparison has been made. Location wise impact was assessed with the comparative report.

S.NO	Parameters	Soil (mg/kg)	Surface water (mg/l)	Karikuppam Village agricultural land near Thermal Power Plant(6)Soil (mg/kg)	Canal Near The Thermal Power Plant(5) (mg/l)	Karikuppam Village Fish Pond (2) (mg/l)
1.	pH	-	8.5	4.66	7.47	8.58
2.	Conductivity (µs/cm)	-	2250	746	1356	1231
3.	Moisture (%)	-	-	4.35		
4.	TDS	-	2100	-	856	868
5.	Turbidity (NTU)	-	-	-	4.6	21.3
6.	Chloride as Cl	-	600	-	151	198
7.	Sulphate as So ₄	-	1000	-	277	237
8.	Zinc as Zn	250	-	16.01	0.037	0.05
9.	Cadmium as Cd	1.4	-	1.23	BLQ	BLQ
10.	Nickel as Ni	45	-	6.20	0.017	0.026
11.	Lead as Pb	70	-	10.54	BLQ	BLQ
12.	Arsenic as As	12	-	BLQ	BLQ	BLQ
13.	Total Chromium as Cr	64	-	6.72	BLQ	BLQ
14.	Mercury as Hg	6.6	-	BLQ	BLQ	BLQ
15.	Selenium as Se	1.0	-	BLQ	BLQ	BLQ
16.	Boron as B	-	2	BLQ	0.254	0.477
17.	Total Hardness as CaCO ₃	-	-	8178	379	254
18.	Calcium as Ca	-	-	566.5	81	55
19.	Magnesium as Mg	-	-	130.95	43	28.2
20.	Manganese as Mn	-	-	25.01	5.28	0.042
21.	Sulphide as H ₂ S (mg/L)	-	-	BLQ	BLQ	BLQ
22.	Aluminium as Al	-	-	1043	0.124	0.346
23.	Total Alkalinity as CaCO ₃	-	-	299	149	267

S.NO	Parameters	Soil (mg/kg)	Surface water (mg/l)	Karikuppam Village agricultural land near Thermal Power Plant(6)Soil (mg/kg)	Canal Near The Thermal Power Plant(5) (mg/l)	Karikuppam Village Fish Pond (2) (mg/l)
24.	Iron as Fe	-	-	1497	1.07	0.27
25.	Sodium as Na	-	-	41.19	86.2	129
26.	Potassium as K	-	-	48.21	38.5	12.1
27.	BOD	-	-	-	34	18
28.	COD	-	-	-	98	70

RESULT OF ANALYSIS OF THE ADDITIONAL SAMPLE COLLECTED BY THE COMMITTEE


The TNPCB committee has collected the additional Effluent sample and the inference based on the analysis report furnished by CUBE Environmental Laboratory , IIT Madras is detailed below:

1.	Name of the Location	TPS I Expansion effluent outlet at the boundary of the plant	
2.	Sample Code	27	
3.	Sample nature	Waste water effluent	
4.	Latitude & Longitude	11.589242& 79.469104	
5.	Date & Time of Sample collection	16.08.2023 & 03.00 P.M	
6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD	
7.	Parameters within the limits prescribed for irrigation on land by TNPCB	pH, Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD &COD	
8.	Exceeded Parameters	Nil	
9.	Inference	All parameters are within limit as prescribed by the Board.	
10	Reference	Enclosed test report	


The TNPCB committee has collected the additional storm water sample and the inference based on the analysis report furnished by CUBE Environmental Laboratory , IIT Madras is detailed below:

1.	Name of the Location	Storm water Drain opposite to TPS I Exp RCC Bunker
2.	Sample Code	28
3.	Sample nature	Storm Water
4.	Latitude & Longitude	11.589435 79.471444
5.	Date & Time of Sample collection	16.08.2023 & 03.16P.M
6.	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD
7.	Parameters within the limits prescribed for irrigation on land by TNPCB	pH, Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD &COD
8.	Exceeded Parameters	Nil
9.	Inference	All parameters are within limit as prescribed by the Board.
10.	Reference	Enclosed test report

The TNPCB committee has collected the additional stormsample and the inference based on the analysis report furnished by CUBE Environmental Laboratory , IIT Madras is detailed below:

1	Name of the Location	TPS II Expansion Storm water drain near STP and Junction Tower V	
2	Sample Code	30	
3	Sample nature	Storm Water	
4	Latitude & Longitude	11. 546642& 79.450058	
5	Date & Time of Sample collection	16.08.2023 & 03.50P.M	
6	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD	
7	Parameters within the limits prescribed for irrigation on land by TNPCB	pH, Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD &COD	
8	Exceeded Parameters	Nil	
9	Inference	All parameters are within limit as prescribed by the Board.	
10	Reference	Enclosed test report	


The TNPCB committee has collected the additional Effluentsample and the inference based on the analysis report furnished by CUBE Environmental Laboratory , IIT Madras is detailed below:

1	Name of the Location	MSTP outflow and Mine I seepage confluence point to kanaiyakoilodai)	 <p>Latitude: 11.601228 Longitude: 79.520014 Altitude: 32.067 m Accuracy: 8.0 m Time: 16-08-2023 16:06 Note: mines 1 map</p>
2	Sample Code	31	
3	Sample nature	Waste water (Effluent)	
4	Latitude & Longitude	11. 601228 & 79.520014	
5	Date & Time of Sample collection	16.08.2023 & 04.30 P.M	
6	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD	
7	Parameters within the limits prescribed for irrigation on land by TNPCB	pH, Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD &COD	
8	Exceeded Parameters	Nil	
9	Inference	All parameters are within limit as prescribed by the Board.	
10	Reference	Enclosed test report	


The TNPCB committee has collected the additional Effluentsample and the inference based on the analysis report furnished by CUBE Environmental Laboratory , IIT Madras is detailed below:

1	Name of the Location	Mine I A seepage discharge point to Sengulam and Anbarasankulam lake	
2	Sample Code	32	
3	Sample nature	Effluent	
4	Latitude & Longitude	11. 545891 & 79.517946	
5	Date & Time of Sample collection	16.08.2023 & 04.00 P.M	
6	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD	
7	Parameters within the limits prescribed for irrigation on land by TNPCB	pH, Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD &COD	
8	Exceeded Parameters	Nil	
9	Inference	All parameters are within limit as prescribed by the Board.	
10	Reference	Enclosed test report	


The TNPCB committee has collected the additional Effluentsample and the inference based on the analysis report furnished by CUBE Environmental Laboratory , IIT Madras is detailed below:

1	Name of the Location	Mine I A seepage discharge point to Ayyan lake	
2	Sample Code	33	
3	Sample nature	Effluent	
4	Latitude & Longitude	11. 516503 & 79.745177	
5	Date & Time of Sample collection	16.08.2023 & 05.12 P.M	
6	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD	
7	Parameters within the limits prescribed for irrigation on land by TNPCB	pH, Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD &COD	
8	Exceeded Parameters	Nil	
9	Inference	All parameters are within limit as prescribed by the Board.	
10	Reference	Enclosed test report	

The TNPCB committee has collected the additional Effluentsample and the inference based on the analysis report furnished by CUBE Environmental Laboratory , IIT Madras is detailed below:

1	Name of the Location	Mine I seepage lake	
2	Sample Code	34	
3	Sample nature	Effluent	
4	Latitude & Longitude	11. 583261 & 79.479660	
5	Date & Time of Sample collection	16.08.2023 & 05.45 P.M	
6	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD	
7	Parameters within the limits prescribed for irrigation on land by TNPCB	pH, Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD &COD	
8	Exceeded Parameters	Nil	
9	Inference	All parameters are within limit as prescribed by the Board.	
10	Reference	Enclosed test report	

The TNPCB committee has collected the additional Effluentsample and the inference based on the analysis report furnished by CUBE Environmental Laboratory , IIT Madras is detailed below:

1	Name of the Location	Hand pump at Panchayat union Middle school at Karikuppam village	
2	Sample Code	7	
3	Sample nature	Hand pump	
4	Latitude & Longitude	11. 516482 & 79.745192	
5	Date & Time of Sample collection	16.08.2023 & 11.00 A.M	
6	Parameters Analysed	pH, Electrical Conductivity, Total Dissolved solids, Turbidity, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, Total Hardness, Calcium, Magnesium, Manganese, Sulphide, Aluminium, Total Alkalinity, Iron, Sodium, Potassium, BOD &COD	
7	Parameters within the limit of prescribed drinking water specification (IS 10500-2012)	pH, Total Dissolved solids, Chlorides, Sulphate, Zinc, Cadmium, Nickel, Lead, Arsenic, Chromium, Mercury, Selenium, Boron, BOD &COD	
8	Exceeded Parameters	Nil	
9	Inference	All parameters are within limit as prescribed by the Board.	
10	Reference	Enclosed test report	

**REPORT OF ANALYSIS OF THE SAMPLE COLLECTED FROM TAQA POWER
PLANT BY THE COMMITTEE**

Date of collection: 28.09.2023

Sample code : 7

Location	Type of Sample
Iruppu kurichi Lat:11.538472, Lon:79.390006	Soil

S. No	Test Parameters	Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (mg/kg)	TNPSB Committee Result
1.	pHat25°C	-	5.72
2.	Conductivity at 25°C	-	56
3.	Moisture	-	8.65
4.	Zinc as Zn	250	50.7
5.	Cadmium as Cd	1.4	BLQ[LOQ:1]
6.	Nickel as Ni	45	35.4
7.	Lead as Pb	70	9.46
8.	Arsenic as As	12	BLQ[LOQ:1]
9.	Chromium as Cr	64	28.3
10.	Mercury as Hg	6.6	BLQ[LOQ:0.04]
11.	Selenium as Se	1.0	BLQ[LOQ:0.5]
12.	Boron as B	-	2.32
13.	Calcium as Ca	-	302
14.	Magnesium as Mg	-	74
15.	Manganese as Mn	-	119.2
16.	Aluminium as Al	-	173.9
17.	Iron as Fe	-	340.2
18.	Potassium as K	-	19.21
19.	Sodium as Na	-	18.44
20.	Chlorides as Cl	-	192
21.	Total Soluble Sulphate as SO ₄	-	0.13
22.	Total Hardness as CaCO ₃	-	5498
23.	Sulphide	-	BLQ[LOQ:1]
24.	Total Alkalinity as CaCO ₃	-	185

Inference

The report of analysis of committee reveals that ***All parameters are well within the standards prescribed by the Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health***



Date of collection: 28.09.2023

Sample code : 8

Location	Type of Sample
Umangalam Lat: 11.533357, Lon: 79.430334	Soil

S. No	Test Parameters	Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (mg/kg)	TNPCB Committee Result
1.	pHat25°C	-	6.24
2.	Conductivity at 25°C	-	82
3.	Moisture	-	19.3
4.	Zinc as Zn	250	12.6
5.	Cadmium as Cd	1.4	BLQ[LOQ:1]
6.	Nickel as Ni	45	1.18
7.	Lead as Pb	70	BLQ[LOQ:1]
8.	Arsenic as As	12	BLQ[LOQ:1]
9.	Chromium as Cr	64	BLQ[LOQ:1]
10.	Mercury as Hg	6.6	BLQ[LOQ:0.04]
11.	Selenium as Se	1.0	BLQ[LOQ:0.5]
12.	Boron as B	-	4.92
13.	Calcium as Ca	-	2864
14.	Magnesium as Mg	-	510
15.	Manganese as Mn	-	120.7
16.	Aluminium as Al	-	884.96
17.	Iron as Fe	-	1015.6
18.	Potassium as K	-	59.98
19.	Sodium as Na	-	107.7
20.	Chlorides as Cl	-	302
21.	Total Soluble Sulphate as SO ₄	-	0.17
22.	Total Hardness as CaCO ₃	-	28243
23.	Sulphide	-	BLQ[LOQ:1]
24.	Total Alkalinity as CaCO ₃	-	329

Inference

The report of analysis of committee reveals that ***All parameters are well within the standards prescribed by the Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health***



Date of collection: 28.09.2023

Sample code : 9

Location	Type of Sample
Ash from ash pond Lat:11.540708,Lon: 79.41781	Ash sample

S. No	Test Parameters	Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (mg/kg)	TNPCB Committee Result
25.	pH at 25°C	-	6.98
26.	Conductivity at 25°C	-	512
27.	Moisture	-	25.08
28.	Zinc as Zn	250	97.4
29.	Cadmium as Cd	1.4	BLQ[LOQ:1]
30.	Nickel as Ni	45	39.9
31.	Lead as Pb	70	BLQ[LOQ:1]
32.	Arsenic as As	12	BLQ[LOQ:1]
33.	Chromium as Cr	64	BLQ[LOQ:1]
34.	Mercury as Hg	6.6	BLQ[LOQ:0.04]
35.	Selenium as Se	1.0	BLQ[LOQ:0.5]
36.	Boron as B	-	15.32
37.	Calcium as Ca	-	3142
38.	Magnesium as Mg	-	566
39.	Manganese as Mn	-	15.54
40.	Aluminium as Al	-	4588.7
41.	Iron as Fe	-	7035.9
42.	Potassium as K	-	26.19
43.	Sodium as Na	-	217.5
44.	Chlorides as Cl	-	278
45.	Total Soluble Sulphate as SO ₄	-	0.18
46.	Total Hardness as CaCO ₃	-	42871
47.	Sulphide	-	BLQ[LOQ:1]
48.	Total Alkalinity as CaCO ₃	-	245

Inference

The report of analysis of committee reveals that **All parameters are well within the standards prescribed by the Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health**



Date of collection: 28.09.2023

Sample code : 5

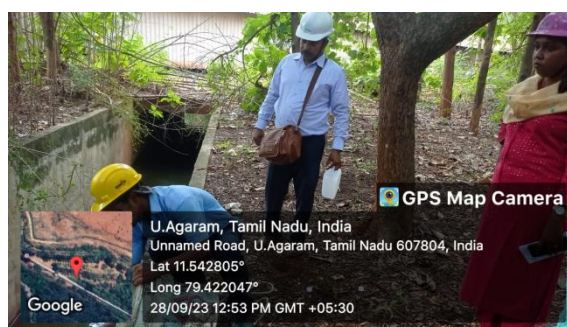
Location	Type of Sample	Purpose of use
Effluent discharge at boundary inside TAQA (outside boundary not accessible) Lat:11.542805; Long: 79.422047	Surface Water	Industrial Purpose

S. No	Test Parameters	Water Quality Standards (as per IS: 2296)	TNPCB Committee Result
1.	pH at 25°C	8.5	7.88
2.	Electrical Conductivity	2250	1637
3.	Total Dissolved Solids at 180°C	2100	998
4.	Turbidity	-	6
5.	Total Suspended Solids at 105°C	-	BLQ[LOQ:2]
6.	Oil & Grease	-	BLQ[LOQ:4]
7.	Fluoride as F	-	0.89
8.	Chloride as Cl	600	146
9.	Sulphates as SO ₄	1000	416
10.	Zinc as Zn	-	BLQ[LOQ:0.02]
11.	Cadmium as Cd	-	BLQ[LOQ:0.1]
12.	Nickel as Ni	-	BLQ[LOQ:0.02]
13.	Lead as Pb	-	0.12
14.	Arsenic as As	-	BLQ[LOQ:0.1]
15.	Chromium as Cr	-	BLQ[LOQ:0.05]
16.	Mercury as Hg	-	BLQ[LOQ:0.001]
17.	Selenium as Se	-	BLQ[LOQ:0.0005]
18.	Boron as B	2	0.433
19.	Total Hardness as CaCO ₃	-	634
20.	Calcium as Ca	-	222
21.	Magnesium as Mg	-	19.4

S. No	Test Parameters	Water Quality Standards (as per IS: 2296)	TNPCB Committee Result
22.	Manganese as Mn	-	BLQ[LOQ:0.01]
23.	Sulphide as H ₂ S	-	BLQ[LOQ:0.02]
24.	Aluminium as Al	-	0.019
25.	Total Alkalinity as CaCO ₃	-	54.5
26.	Iron as Fe	-	0.091
27.	Sodium as Na	-	81.01
28.	Potassium as K	-	4.45
29.	Biochemical Oxygen Demand (BOD) for 3 days at 27°C	-	2.2
30.	Chemical Oxygen Demand (COD)	-	8

Inference

The report of analysis of committee reveals that All parameters are well within the standards prescribed in Water Quality Standards (as per IS: 2296)



Date of collection: 28.09.2023

Sample code : 1

Location	Type of Sample
Pudukoorapettai- Bore Well Drinking Water Lat:11.52304; Long: 79.35831	Dug well

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	TNPCB Committee Result
1.	pH at 25°C	6.5-8.5	6.01
2.	Electrical Conductivity	-	710
3.	Total Dissolved Solids at 180 °C	500	448
4.	Turbidity	1	BLQ[LOQ:0.1]
5.	Total Suspended Solids at 105 °C		BLQ[LOQ:2]
6.	Oil & Grease		BLQ[LOQ:4]
7.	Fluoride as F		0.15
8.	Chloride as Cl	250	127
9.	Sulphates as SO ₄	200	103
10.	Zinc as Zn	5	BLQ[LOQ:0.02]
11.	Cadmium as Cd	0.003	BLQ[LOQ:0.1]
12.	Nickel as Ni	0.02	BLQ[LOQ:0.02]
13.	Lead as Pb	0.01	0.05
14.	Arsenic as As	0.01	BLQ[LOQ:0.1]
15.	Chromium as Cr	0.05	BLQ[LOQ:0.05]
16.	Mercury as Hg	0.001	BLQ[LOQ:0.001]
17.	Selenium as Se	0.01	BLQ[LOQ:0.005]
18.	Boron as B	0.5	0.055
19.	Total Hardness as CaCO ₃	200	240
20.	Calcium as Ca	75	77.6
21.	Magnesium as Mg	30	11.2
22.	Manganese as Mn	0.1	BLQ[LOQ:0.01]
23.	Sulphide as H ₂ S	0.05	BLQ[LOQ:0.02]
24.	Aluminium as Al	0.03	0.17
25.	Total Alkalinity as CaCO ₃	200	44.6
26.	Iron as Fe	0.3	0.214
27.	Sodium as Na	-	40.95
28.	Potassium as K	-	1.255

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	TNPCB Committee Result
29.	Biochemical Oxygen Demand(BOD) for 3 days at 27°C	-	BLQ[LOQ:2]
30.	Chemical Oxygen Demand (COD)	-	BLQ[LOQ:4]

Inference

The report of analysis of committee reveals that there all the parameters are within the drinking water standard limit as per IS 10500:2012 except **Total Hardness and Calcium.**



Date of collection: 28.09.2023

Sample code : 2

Location	Type of Sample
U.Agaram Ground Water for Drinking-Borewell-Public use Lat:11.542339; Long: 79.401907	Dug well

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	TNPCB Committee Result
1.	pH at 25°C	6.5-8.5	6.67
2.	Electrical Conductivity	-	248
3.	Total Dissolved Solids at 180 °C	500	154
4.	Turbidity	1	BLQ[LOQ:0.1]
5.	Total Suspended Solids at 105 °C		BLQ[LOQ:2]
6.	Oil & Grease		BLQ[LOQ:4]
7.	Fluoride as F		0.53
8.	Chloride as Cl	250	22.6
9.	Sulphates as SO ₄	200	9.3
10.	Zinc as Zn	5	BLQ[LOQ:0.02]
11.	Cadmium as Cd	0.003	BLQ[LOQ:0.1]
12.	Nickel as Ni	0.02	BLQ[LOQ:0.02]
13.	Lead as Pb	0.01	0.12
14.	Arsenic as As	0.01	BLQ[LOQ:0.1]
15.	Chromium as Cr	0.05	BLQ[LOQ:0.05]
16.	Mercury as Hg	0.001	BLQ[LOQ:0.001]
17.	Selenium as Se	0.01	BLQ[LOQ:0.005]
18.	Boron as B	0.5	0.092
19.	Total Hardness as CaCO ₃	200	77.2
20.	Calcium as Ca	75	21.4
21.	Magnesium as Mg	30	5.8
22.	Manganese as Mn	0.1	BLQ[LOQ:0.01]
23.	Sulphide as H ₂ S	0.05	BLQ[LOQ:0.02]
24.	Aluminium as Al	0.03	0.012
25.	Total Alkalinity as CaCO ₃	200	59.4
26.	Iron as Fe	0.3	0.083
27.	Sodium as Na	-	12.98
28.	Potassium as K	-	0.802
29.	Biochemical Oxygen Demand (BOD) for 3 days at 27°C	-	BLQ[LOQ:2]

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	TNPCCB Committee Result
30.	Chemical Oxygen Demand (COD)	-	BLQ[LOQ:4]

Inference

The report of analysis of committee reveals that all the parameters are within the drinking water standard limit as per IS 10500:2012.



Date of collection: 28.09.2023

Sample code : 3

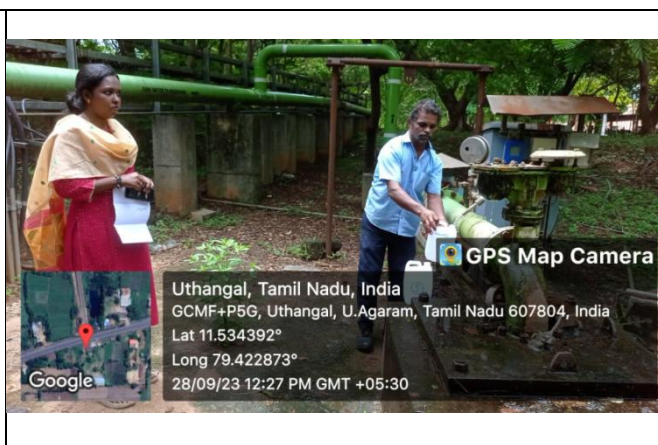
Location	Type of Sample
Near Ash Pond (ID 11) Ground Water- Bore well inside TAQA Lat:11.534392;Long: 79.422873	Dug well

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	TNPCB Committee Result
1.	pH at 25°C	6.5-8.5	6.45
2.	Electrical Conductivity	-	327
3.	Total Dissolved Solids at 180 °C	500	214
4.	Turbidity	1	BLQ[LOQ:0.1]
5.	Total Suspended Solids at 105 °C		BLQ[LOQ:2]
6.	Oil & Grease		BLQ[LOQ:4]
7.	Fluoride as F		0.44
8.	Chloride as Cl	250	22.2
9.	Sulphates as SO ₄	200	11.0
10.	Zinc as Zn	5	BLQ[LOQ:0.02]
11.	Cadmium as Cd	0.003	BLQ[LOQ:0.1]
12.	Nickel as Ni	0.02	BLQ[LOQ:0.02]
13.	Lead as Pb	0.01	0.10
14.	Arsenic as As	0.01	BLQ[LOQ:0.1]
15.	Chromium as Cr	0.05	BLQ[LOQ:0.05]
16.	Mercury as Hg	0.001	BLQ[LOQ:0.001]
17.	Selenium as Se	0.01	BLQ[LOQ:0.005]
18.	Boron as B	0.5	0.112
19.	Total Hardness as CaCO ₃	200	105
20.	Calcium as Ca	75	30.0
21.	Magnesium as Mg	30	7.2
22.	Manganese as Mn	0.1	BLQ[LOQ:0.01]
23.	Sulphide as H ₂ S	0.05	BLQ[LOQ:0.02]
24.	Aluminium as Al	0.03	BLQ[LOQ:0.01]
25.	Total Alkalinity as CaCO ₃	200	99.0
26.	Iron as Fe	0.3	0.05
27.	Sodium as Na	-	16.55
28.	Potassium as K	-	1.04

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	TNPCCB Committee Result
29.	Biochemical Oxygen Demand(BOD) for 3 days at 27°C	-	BLQ[LOQ:2]
30.	Chemical Oxygen Demand (COD)	-	BLQ[LOQ:4]

Inference

The report of analysis of committee reveals that all the parameters are within the drinking water standard limit as per IS 10500:2012.



Date of collection: 28.09.2023

Sample code : 4

Location	Type of Sample
Umangalam Ground Water for Drinking-Bore well- Publicuse Lat:11.53674; Long: 79.43188	Dug well

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	TNPCB Committee Result
1.	pH at 25°C	6.5-8.5	6.62
2.	Electrical Conductivity	-	316
3.	Total Dissolved Solids at 180 °C	500	186
4.	Turbidity	1	BLQ[LOQ:0.1]
5.	Total Suspended Solids at 105 °C		BLQ[LOQ:2]
6.	Oil & Grease		BLQ[LOQ:4]
7.	Fluoride as F		0.52
8.	Chloride as Cl	250	26.9
9.	Sulphates as SO ₄	200	31.6
10.	Zinc as Zn	5	BLQ[LOQ:0.02]
11.	Cadmium as Cd	0.003	BLQ[LOQ:0.1]
12.	Nickel as Ni	0.02	BLQ[LOQ:0.02]
13.	Lead as Pb	0.01	0.10
14.	Arsenic as As	0.01	BLQ[LOQ:0.1]
15.	Chromium as Cr	0.05	BLQ[LOQ:0.05]
16.	Mercury as Hg	0.001	BLQ[LOQ:0.001]
17.	Selenium as Se	0.01	BLQ[LOQ:0.005]
18.	Boron as B	0.5	0.094
19.	Total Hardness as CaCO ₃	200	103
20.	Calcium as Ca	75	26.9
21.	Magnesium as Mg	30	8.7
22.	Manganese as Mn	0.1	BLQ[LOQ:0.01]
23.	Sulphide as H ₂ S	0.05	BLQ[LOQ:0.02]
24.	Aluminium as Al	0.03	BLQ[LOQ:0.01]
25.	Total Alkalinity as CaCO ₃	200	49.5
26.	Iron as Fe	0.3	0.049
27.	Sodium as Na	-	14.12

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	TNPCB Committee Result
28.	Potassium as K	-	1.065
29.	Biochemical Oxygen Demand(BOD) for 3 days at 27°C	-	BLQ[LOQ:2]
30.	Chemical Oxygen Demand (COD)	-	BLQ[LOQ:4]

Inference

The report of analysis of committee reveals that there all the parameters are within the drinking water standard limit as per IS 10500:2012 .



Date of collection: 28.09.2023

Sample code : 7

Location	Type of Sample
Iruppu kurichi Lat:11.538472, Lon:79.390006	Soil

S. No	Test Parameters	Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (mg/kg)	TNPCB Committee Result
1.	pHat25°C	-	5.72
2.	Conductivity at 25°C	-	56
3.	Moisture	-	8.65
4.	Zinc as Zn	250	50.7
5.	Cadmium as Cd	1.4	BLQ[LOQ:1]
6.	Nickel as Ni	45	35.4
7.	Lead as Pb	70	9.46
8.	Arsenic as As	12	BLQ[LOQ:1]
9.	Chromium as Cr	64	28.3
10.	Mercury as Hg	6.6	BLQ[LOQ:0.04]
11.	Selenium as Se	1.0	BLQ[LOQ:0.5]
12.	Boron as B	-	2.32
13.	Calcium as Ca	-	302
14.	Magnesium as Mg	-	74
15.	Manganese as Mn	-	119.2
16.	Aluminium as Al	-	173.9
17.	Iron as Fe	-	340.2
18.	Potassium as K	-	19.21
19.	Sodium as Na	-	18.44
20.	Chlorides as Cl	-	192
21.	Total Soluble Sulphate as SO ₄	-	0.13
22.	Total Hardness as CaCO ₃	-	5498
23.	Sulphide	-	BLQ[LOQ:1]
24.	Total Alkalinity as CaCO ₃	-	185

Inference

The report of analysis of committee reveals that ***All parameters are well within the standards prescribed by the Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health***



ANNEXURE – 34**REPORT OF ANALYSIS OF LIGNITE AND ASH SAMPLE COLLECTED AT M/S. NLC
INDIA LTD**

Sl. No.	Parameters	Unit	Composite Sample from M/s. NNTPS		
			Lignite	Fly Ash	Bottom Ash
1.	pH at 25°C	-	6.17	10.91	7.53
2.	Conductivity at 25°C	µs/cm	394	386	274
3.	Moisture	%	48.51	<1.0	19.03
4.	Zinc as Zn	mg/kg	23.7	97.2	44.5
5.	Cadmium as Cd	mg/kg	BLQ[LOQ:1.0]	BLQ[LOQ:1.0]	BLQ[LOQ:1.0]
6.	Nickel as Ni	mg/kg	60.9	116	96.9
7.	Lead as Pb	mg/kg	56.3	54.6	45.6
8.	Arsenic as As	mg/kg	BLQ[LOQ:1.0]	BLQ[LOQ:1.0]	BLQ[LOQ:1.0]
9.	Chromium as Cr	mg/kg	BLQ[LOQ:1.0]	23.22	BLQ[LOQ:1.0]
10.	Mercury as Hg	mg/kg	BLQ[LOQ: 0.04]	BLQ[LOQ: 0.04]	BLQ[LOQ: 0.04]
11.	Selenium as Se	mg/kg	1.26	8.23	1.11
12.	Boron as B	mg/kg	5.21	39.74	7.38
13.	Calcium as Ca	mg/kg	97.2	96	176
14.	Magnesium as Mg	mg/kg	82.4	117	155
15.	Manganese as Mn	mg/kg	9.75	38.88	32.82
16.	Aluminium as Al	mg/kg	19144	83562	18980
17.	Iron as Fe	mg/kg	9042	1842	10823
18.	Potassium as K	mg/kg	12	42	22
19.	Sodium as N	mg/kg	186	152	68
20.	Chlorides as Cl	mg/kg	72.7	144	73.3
21.	Total Soluble Sulphate as SO ₄	%	0.06	0.01	0.07
22.	Total Hardness as CaCO ₃	mg/kg	582	721	1076
23.	Sulphide	mg/kg	BLQ[LOQ:1.0]	BLQ[LOQ:1.0]	BLQ[LOQ:1.0]
24.	Total Alkalinity as CaCO ₃	mg/kg	149	491	99.9

Inference:

The Results of Analysis shows the presence of traceable heavy metals such as Zinc, Lead, Nickle, Selenium, Aliminium and Boron in all three composite samples of Lignite, Fly ash and Bottom Ash. While, Chromium is found only in the composite sample of Fly ash. The ROA also reveals that Mercury is Below Level of Quantification in all three composite samples.



**REPORT OF ANALYSIS OF COAL, LIGNITE AND ASH SAMPLE COLLECTED AT
M/S. NLC INDIA LTD AND M/S IL&FS TAMIL NADU POWER COMPANY LTD.**

Sl. No	Parameters	Unit	II&FS (Coal)			NLC (Lignite)		
			Coal	Fly Ash	Bottom Ash	Lignite	Fly Ash	Bottom Ash
1.	pH at 25°C	-	5.78	11.18	9.18	4.58	11.71	8.32
2.	Conductivity at 25°C	µs/cm	325	1142	210	1069	607	221
3.	Moisture	%	33.5	0.05	7.29	36.99	0.50	9.63
4.	Zinc as Zn	mg/kg	10.4	64.2	14.3	10.3	110	38.2
5.	Cadmium as Cd	mg/kg	BLQ[LO Q:1.0]	2.27	BLQ[LO Q:1.0]	BLQ[LOQ:1.0]	2.13	BLQ [LOQ:1.0]
6.	Nickel as Ni	mg/kg	5.10	53.4	8.81	1.61	88.2	25.4
7.	Lead as Pb	mg/kg	BLQ[L OQ:1.0]	27.4	7.31	BLQ[LOQ: 1.0]	26.6	4.50
8.	Arsenic as As	mg/kg	BLQ[LO Q:1.0]	1.2	BLQ[LO Q:1.0]	BLQ[LOQ:1.0]	3.4	BLQ [LOQ:1.0]
9.	Chromium as Cr	mg/kg	BLQ[L OQ:1.0]	33.0	7.53	BLQ [LOQ:1.0]	56.0	2.02
10.	Mercury as Hg	mg/kg	BLQ[LO Q: 0.04]	BLQ[LO Q: 0.04]	BLQ[LO Q: 0.04]	BLQ [LOQ:0.04]	BLQ[LO Q: 0.04]	BLQ [LOQ:0.04]
11.	Selenium as Se	mg/kg	BLQ[LO Q: 0.5]	2.68	BLQ[LO Q:0.5]	BLQ [LOQ:0.5]	1.91	BLQ [LOQ:0.5]
12.	Boron as B	mg/kg	36.35	903.4	39.37	13.01	116.7	4.49
13.	Calcium as Ca	mg/kg	94.0	718	109	1286	152	166
14.	Magnesium as Mg	mg/kg	114	NIL	26.5	493	46.2	55.6
15.	Manganese as Mn	mg/kg	62.24	1152	267.7	16.04	35.56	15.16
16.	Aluminium as Al	mg/kg	2680	35891	6071	1437.2	62065	6065
17.	Iron as Fe	mg/kg	14281	42106	13148	6723	58424	12134
18.	Potassium as K	mg/kg	32.5	36	18	18.43	28	12
19.	Sodium as N	mg/kg	584	284	232	291.34	282	194
20.	Chlorides as Cl	mg/kg	465	237	185	94.3	235	136
21.	Total Soluble Sulphate as SO ₄	%	0.02	0.40	0.01	0.42	0.03	0.02
22.	Total Hardness as CaCO ₃	mg/kg	705	1796	822	5247	569	643
23.	Sulphide	mg/kg	BLQ[LO Q:1.0]	BLQ[LO Q:1.0]	BLQ[LO Q:1.0]	BLQ[LOQ:1.0]	BLQ[LO Q:1.0]	BLQ [LOQ:1.0]
24.	Total Alkalinity as CaCO₃	mg/kg	95.9	440	572	Nil	774	375

The Results of Analysis shows the presence of traceable heavy metals in all three composite samples of Lignite, Fly ash and Bottom Ash. The ROA also reveals that Mercury is Below Level of Quantification in all three composite samples.



ANNEXURE – 35**REPORT OF AAQ SURVEY CONDUCTED BY THE TNPCB MOBILE VAN IN AND AROUND NEYVELI**

S. No	Date	Latitude and Longitude	Location	PM 10 $\mu\text{g}/\text{m}^3$	PM2.5 $\mu\text{g}/\text{m}^3$	SO2 $\mu\text{g}/\text{m}^3$	NO2 $\mu\text{g}/\text{m}^3$	CO mg/m^3	NH3 $\mu\text{g}/\text{m}^3$	Ozone $\mu\text{g}/\text{m}^3$	Benzene $\mu\text{g}/\text{m}^3$
NAAQ Std (24 Hr)				100	60	80	80	-	400	-	-
1	07-09-23	11°33'52.218"N & 79°24'14.3136"E	Mudhanai (6kms from TPS Expansion & NNTPS)	13	5	3.6	25.8	0.28	27.6	2.8	0.5
2	08-09-23	11°32'6.0756"N & 79°25'36.0768"E	Umangalam (5kms from TPS Expansion & 3 kms from Mine II)	24	14	3.7	27.8	0.68	23.3	3.1	0.5
3	09-09-23	11°37'21.7272"N & 79°29'6.3492"E	Block 6 (3kms from Mine I & 4kms from NNTPS)	27	12	3.5	33.4	0.67	19.9	3.2	0.6
4	11-09-23	11°37'5.2896"N & 79°30'59.8968"E	Block 8 (3kms from Mine I & 6kms from NNTPS)	26	11	5.5	30.1	0.42	29.6	2.9	0.8
5	12-09-23	11°32'12.7284"N & 79°29'18.852"E	GangaiKondan (2kms from Mine I & 2kms from Mine II)	41	11	4.4	23.9	0.76	35.1	3.3	0.9
6	13-09-23	11°33'54.1764"N & 79°33'17.4672"E	Pettai,Vadalur (2kms from Mine 1A)	41	12	4.2	30.9	0.61	22.1	2.9	0.7

7	14-09-23	11°35'2 4.3276" N & 79°33'3. 5172"E	Kannuthop pu (1km from Mine 1A)	51	10	3.8	30.1	0.6	18.9	4	0.4
8	15-09-23	11°37'4. 0224"N & 79°32'4 1.694"E	Indhiranag ar (4kms from Mine 1A)	49	13	4	29	0.52	18.1	3.8	1.1
9	19-09-23	11°31'0. 2532"N & 79°32'5. 1864"E	Mettukupp am (5kms from Mine 1A & 6kms from Mine 2)	27	7	3.7	29	0.37	20.1	3	0.4
10	20-09-23	11°32'3 5.448"N & 79°32'4 4.2428" E	Parvathipu ram,vadalu r (3kms from Mine 1A & 8kms from Mine 2)	43	24	4.2	34.7	0.82	24.6	3	0.9
11	21-09-23	11°29'7. 5012"N & 79°24'2. 3508"E	Gopalapur am (2kms from Mine 2)	24	14	3.3	29.2	0.63	21.6	3.4	0.5
12	22-09-23	11°28'5 0.9844" N & 79°26'4 0.5168" E	Kammapur am (1 km from Mine 2)	28	9	5.7	24.3	0.4	30	4.3	0.7
13	25-09-23	11°28'1 0.1892" N & 79°29'4 4.0268" E	Dharmanal lur (3 km from Mine 2)	26	13	4.6	33.5	0.4	27.7	3.4	0.7

**REPORT OF AAQ SURVEY CONDUCTED BY THE TNPCCB MOBILE VAN IN AND
AROUND PARAGIPETTAI**

S. No	Date	Latitude and Longitude	Location	PM 10 $\mu\text{g}/\text{m}^3$	PM2.5 $\mu\text{g}/\text{m}^3$	SO2 $\mu\text{g}/\text{m}^3$	NO2 $\mu\text{g}/\text{m}^3$	CO mg/m^3	NH3 $\mu\text{g}/\text{m}^3$	Ozone $\mu\text{g}/\text{m}^3$	Benzene $\mu\text{g}/\text{m}^3$
NAAQ Std (24 Hr)				100	60	80	80	-	400	-	-
1	26-09-23	11°31'6.6252"N & 79°44'17.6028"E	Panchankuppam (1km from the power plant)	43	19	3.6	27.6	0.39	34.3	3.3	0.7
2.	28-09-23	11°32'13.5348"N & 79°45'26.3808"E	Vellingaray anpettai (4 km from the power plant)	21	10	4	28.7	0.35	29.1	3.2	0.5
3.	29-09-23	11°30'57.5748"N & 79°44'45.3768"E	Karikuppam (2 km from the power plant)	29	11	4	30.4	0.98	18.8	3.5	0.9

ANNEXURE – 36**STACK MONITORING SURVEY CONDUCTED AT M/S. NLC INDIA LTD. AND M/S
IL&FS TAMIL NADU POWER COMPANY LTD.**

Sl. No	Parameters	Methods	IL & FS			NNTPS	
			Stand ards	Unit 1	Unit 2	Stand ards	Unit 2
1.	Stack gas temperature (°C)	IS 11255 (Part 03) : 2008		92	96		166
2.	Stack gas flow Rate (Nm ³ /hr)	IS 11255 (Part 03) : 2008		1891505	1903552		1549291
3.	Carbon monoxide as CO (ppm)	SO-IN-MUL-TE-147 Ver 1.1: April 5, 2017		0	0		6
4.	NO _x (as NO ₂) (mg/Nm ³)	SO-IN-MUL-TE-147 Ver 1.1: April 5, 2017	300	271	230	100	285
5.	Sulfur dioxide as SO ₂ (mg/Nm ³)	IS 11255 (Part 2) : 1985 by Barium-Thorin titration method	200	59	177	100	3914
6.	PM (mg/Nm ³)	IS 11255 (Part 01) : 1985	50	12	14	30	108
7.	Carbon dioxide as CO ₂ (%)	SO-IN-MUL-TE-147 Ver 1.1: April 5, 2017		12.2	12.5		12.6
Metals(Particulate phase)							
8.	Mercury as Hg (mg/Nm ³)	USEPA 29	0.03	<0.01	<0.01	0.03	<0.01
9.	Nickel as Ni (mg/Nm ³)	USEPA 29		<0.01	<0.01		0.04
10.	Lead as Pb (mg/Nm ³)	USEPA 29		0.02	0.02		0.03
11.	Zinc as Zn (mg/Nm ³)	USEPA 29		<0.01	<0.01		6.72
12.	Arsenic as As (mg/Nm ³)	USEPA 29		<0.01	<0.01		<0.01
13.	Selenium as Se (mg/Nm ³)	USEPA 29		<0.01	<0.01		<0.01
14.	Cadmium as Cd (mg/Nm ³)	USEPA 29		<0.01	<0.01		<0.01
15.	Oxygen as O ₂ (mg/Nm ³)	SO-IN-MUL-TE-147 Ver 1.1: April 5, 2017		7.14	6.77		6.64

Inference:

The results reveals that the parameters SPM, SO₂ and NO_x exceed the limit in the unit M/s. NLC India Ltd. and all the parameter are within the limit in the unit IL&FS Tamil Nadu Power Company Ltd. When comparison made with the two units, the unit M/s IL & FS has installed FGD system, which is essential to maintain satisfactory air quality and all the tested parameters are within the prescribed standard. Hence, the unit of NNTPS of M/s NLC is recommended to install FGD to maintain satisfactory air quality.

ANNEXURE -37**COMPARITIVE STATEMENT ON REPORT OF ANALYSIS OF THE WATER
SAMPLE WITH AVAILABLE BASELINE DATA**

Date of collection: 29.08.2023 at 6.42 pm

Sample code : 1

Location	Type of water body	Purpose of use
Rajakuppam village Lat & Long:11.542567, 79.577477	Ground Water- Tube well	Drinking

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EC compliance report, 2003)	TNPCB Committee Result
1.	pH	6.5-8.5	8.30	8.35
2.	Conductivity (µs/cm)	-	616	642
3.	TDS (mg/L)	500	376.0	408
4.	Turbidity (NTU)	1	NA	<0.1
5.	Chloride as Cl (mg/L)	250	63.0	99
6.	Sulphate as So ₄ (mg/L)	200	46.09	61.1
7.	Zinc as Zn (mg/L)	5	0.063	< 0.005
8.	Cadmium as Cd (mg/L)	0.003	NA	< 0.005
9.	Nickel as Ni (mg/L)	0.02	NA	< 0.005
10.	Lead as Pb (mg/L)	0.01	NA	<0.005
11.	Arsenic as As (mg/L)	0.01	NA	<0.005
12.	Total Chromium as Cr (mg/L)	0.05	NA	<0.005
13.	Mercury as Hg (mg/L)	0.001	NA	<0.001
14.	Selenium as Se (mg/L)	0.01	NA	<0.005
15.	Boron as B (mg/L)	0.5	NA	0.23
16.	Total Hardness as CaCO₃(mg/L)	200	190.0	232
17.	Calcium as Ca (mg/L)	75	48.80	60.8
18.	Magnesium as Mg (mg/L)	30	16.52	19.4
19.	Manganese as Mn (mg/L)	0.1	0.003	<0.01
20.	Sulphide as H ₂ S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	<0.01
22.	Total Alkalinity as CaCO ₃ (mg/L)	200	180.0	183
23.	Iron as Fe (mg/L)	0.3	0.25	<0.05
24.	Sodium as Na (mg/L)	-	38.80	44.1
25.	Potassium as K (mg/L)	-	3.06	5.51
26.	BOD (mg/L)	-	NA	<2.0
27.	COD (mg/L)	-	NA	<4.0

NA- Not Analyzed

Inference:

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. Also, **All the parameters are within the drinking water standard limit as per IS 10500:2012 except Total Hardness as CaCO_3 (232/200)**. However, the hardness value comes under permissible limit 600.



Date of collection: 29.08.2023 at 2.37 pm

Sample code : 2

Location	Type of water body	Purpose of use
TPS-II Outside Lat & Long: 11.566431, 79.441052	Ground Water- Tube well	Drinking

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EC compliance report, 2007)	2.TNPCB Committee Result
1.	pH	6.5-8.5	6.91	8.23
2.	Conductivity (µs/cm)	-	214	192
3.	TDS (mg/L)	500	215	122
4.	Turbidity (NTU)	1	NA	1.3
5.	Chloride as Cl (mg/L)	250	24	21.2
6.	Sulphate as So ₄ (mg/L)	200	10.90	14.3
7.	Zinc as Zn (mg/L)	5	0.995	<0.005
8.	Cadmium as Cd (mg/L)	0.003	NA	<0.005
9.	Nickel as Ni (mg/L)	0.02	NA	0.011
10.	Lead as Pb (mg/L)	0.01	NA	<0.005
11.	Arsenic as As (mg/L)	0.01	NA	<0.005
12.	Total Chromium as Cr (mg/L)	0.05	NA	<0.005
13.	Mercury as Hg (mg/L)	0.001	NA	<0.001
14.	Selenium as Se (mg/L)	0.01	NA	<0.005
15.	Boron as B (mg/L)	0.5	NA	<0.1
16.	Total Hardness as CaCO ₃ (mg/L)	200	59	65.3
17.	Calcium as Ca (mg/L)	75	16.20	20.2
18.	Magnesium as Mg (mg/L)	30	4.50	3.60
19.	Manganese as Mn (mg/L)	0.1	0.016	<0.01
20.	Sulphide as H ₂ S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	0.021
22.	Total Alkalinity as CaCO ₃ (mg/L)	200	60	49.5
23.	Iron as Fe (mg/L)	0.3	1.56	<0.05
24.	Sodium as Na (mg/L)	-	12.30	6.62
25.	Potassium as K (mg/L)	-	1.92	<1
26.	BOD (mg/L)	-	NA	<2.0
27.	COD (mg/L)	-	NA	<4.0

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. Also, **All the parameters are within the drinking water standard limit as per IS 10500:2012 except Turbidity (1.3/ 1)**. However, the turbidity value comes under permissible limit 5.



Date of collection: 29.08.2023 at 11.10 am

Sample code : 3

Location	Type of water body	Purpose of use
Block 3, NLC Township Lat & Long: 11.625303, 79.507798	Ground Water- Tube well	Drinking

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EC compliance report, 2008)	TNPCB Committee Result
1.	pH	6.5-8.5	7.16	7.83
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	141	125
3.	TDS (mg/L)	500	89	86
4.	Turbidity (NTU)	1	NA	<0.1
5.	Chloride as Cl (mg/L)	250	17	24
6.	Sulphate as So_4 (mg/L)	200	7.35	2.5
7.	Zinc as Zn (mg/L)	5	BDL	<0.005
8.	Cadmium as Cd (mg/L)	0.003	NA	<0.005
9.	Nickel as Ni (mg/L)	0.02	NA	0.015
10.	Lead as Pb (mg/L)	0.01	NA	<0.005
11.	Arsenic as As (mg/L)	0.01	NA	<0.005
12.	Total Chromium as Cr (mg/L)	0.05	NA	<0.005
13.	Mercury as Hg (mg/L)	0.001	NA	<0.001
14.	Selenium as Se (mg/L)	0.01	NA	<0.005
15.	Boron as B (mg/L)	0.5	NA	<0.1
16.	Total Hardness as CaCo_3 (mg/L)	200	19	35.6
17.	Calcium as Ca (mg/L)	75	5.1	10.5
18.	Magnesium as Mg (mg/L)	30	1.6	2.26
19.	Manganese as Mn (mg/L)	0.1	BDL	<0.01
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	<0.01
22.	Total Alkalinity as CaCo_3 (mg/L)	200	40	29.7
23.	Iron as Fe (mg/L)	0.3	0.25	<0.05
24.	Sodium as Na (mg/L)	-	18.65	5.26
25.	Potassium as K (mg/L)	-	0.7	<1
26.	BOD (mg/L)	-	NA	<2.0
27.	COD (mg/L)	-	NA	<4.0

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, All the parameters are within the drinking water standard limit as per IS 10500:2012.***



Date of collection: 29.08.2023 at 11.25 am

Sample code : 4

Location	Type of water body	Purpose of use
Block 15, NLC Township Lat & Long: 11.610977, 79.456687	Ground Water- Tube well	Drinking

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EC compliance report, 2015)	TNPCB Committee Result
1.	pH	6.5-8.5	7.53	8.00
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	135	124
3.	TDS (mg/L)	500	164	78
4.	Turbidity (NTU)	1	NA	<0.1
5.	Chloride as Cl (mg/L)	250	7.8	14.1
6.	Sulphate as SO_4 (mg/L)	200	9.7	3.2
7.	Zinc as Zn (mg/L)	5	0.218	<0.005
8.	Cadmium as Cd (mg/L)	0.003	NA	<0.005
9.	Nickel as Ni (mg/L)	0.02	NA	<0.005
10.	Lead as Pb (mg/L)	0.01	NA	<0.005
11.	Arsenic as As (mg/L)	0.01	NA	<0.005
12.	Total Chromium as Cr (mg/L)	0.05	NA	<0.005
13.	Mercury as Hg (mg/L)	0.001	NA	<0.001
14.	Selenium as Se (mg/L)	0.01	NA	<0.005
15.	Boron as B (mg/L)	0.5	NA	<0.1
16.	Total Hardness as CaCO_3 (mg/L)	200	48	33.7
17.	Calcium as Ca (mg/L)	75	10.5	9.68
18.	Magnesium as Mg (mg/L)	30	5.3	2.31
19.	Manganese as Mn (mg/L)	0.1	0.009	<0.01
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	<0.01
22.	Total Alkalinity as CaCO_3 (mg/L)	200	36	29.7
23.	Iron as Fe (mg/L)	0.3	1.6	<0.05
24.	Sodium as Na (mg/L)	-	4.7	3.84
25.	Potassium as K (mg/L)	-	1.12	<1
26.	BOD (mg/L)	-	NA	<2.0
27.	COD (mg/L)	-	NA	4.0`

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, All the parameters are within the drinking water standard limit as per IS 10500:2012.***



Date of collection: 29.08.2023 at 12.00 pm

Sample code : 5

Location	Type of water body	Purpose of use
Block 24, NLC Township Lat & Long: 11.605764, 79.499952	Ground Water- Tube well	Drinking

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EC compliance report, 2009)	TNPCB Committee Result
1.	pH	6.5-8.5	6.59	7.94
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	NA	161
3.	TDS (mg/L)	500	96	92
4.	Turbidity (NTU)	1	NA	<0.1
5.	Chloride as Cl (mg/L)	250	21	27.3
6.	Sulphate as So_4 (mg/L)	200	15	8.2
7.	Zinc as Zn (mg/L)	5	0.028	<0.005
8.	Cadmium as Cd (mg/L)	0.003	NA	<0.005
9.	Nickel as Ni (mg/L)	0.02	NA	0.030
10.	Lead as Pb (mg/L)	0.01	NA	<0.005
11.	Arsenic as As (mg/L)	0.01	NA	<0.005
12.	Total Chromium as Cr (mg/L)	0.05	NA	<0.005
13.	Mercury as Hg (mg/L)	0.001	NA	<0.001
14.	Selenium as Se (mg/L)	0.01	NA	<0.005
15.	Boron as B (mg/L)	0.5	NA	<0.1
16.	Total Hardness as CaCo_3 (mg/L)	200	38	43.6
17.	Calcium as Ca (mg/L)	75	8.8	12.1
18.	Magnesium as Mg (mg/L)	30	3.9	3.23
19.	Manganese as Mn (mg/L)	0.1	0.05	<0.01
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	<0.01
22.	Total Alkalinity as CaCo_3 (mg/L)	200	30	19.8
23.	Iron as Fe (mg/L)	0.3	0.22	<0.05
24.	Sodium as Na (mg/L)	-	11.9	5.43
25.	Potassium as K (mg/L)	-	0.3	<1
26.	BOD (mg/L)	-	NA	<2.0
27.	COD (mg/L)	-	NA	8..0

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, All the parameters are within the drinking water standard limit as per IS 10500:2012.***



Date of collection: 29.08.2023 at 5.46 pm

Sample code : 6

Location	Type of water body	Purpose of use
Erumboor Village Lat & Long: 11.469897, 79.513353	Ground Water- Tube well	Public Use

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EC compliance report, 2003)	TNPCB Committee Result
1.	pH	6.5-8.5	7.98	8.38
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	2930	2874
3.	TDS (mg/L)	500	1803.0	1783
4.	Turbidity (NTU)	1	NA	<0.1
5.	Chloride as Cl (mg/L)	250	608.00	637
6.	Sulphate as So_4 (mg/L)	200	385.00	56.9
7.	Zinc as Zn (mg/L)	5	0.007	0.925
8.	Cadmium as Cd (mg/L)	0.003	NA	<0.005
9.	Nickel as Ni (mg/L)	0.02	NA	0.022
10	Lead as Pb (mg/L)	0.01	NA	<0.005
11	Arsenic as As (mg/L)	0.01	NA	<0.005
12	Total Chromium as Cr (mg/L)	0.05	NA	<0.005
13	Mercury as Hg (mg/L)	0.001	NA	<0.001
14	Selenium as Se (mg/L)	0.01	NA	<0.005
15	Boron as B (mg/L)	0.5	NA	0.33
16	Total Hardness as CaCo_3(mg/L)	200	696.0	1059
17	Calcium as Ca (mg/L)	75	NA	222
18	Magnesium as Mg (mg/L)	30	110.81	122
19	Manganese as Mn (mg/L)	0.1	0.037	0.450
20	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21	Aluminium as Al (mg/L)	0.03	NA	<0.01
22	Total Alkalinity as CaCo_3 (mg/L)	200	302.0	371
23	Iron as Fe (mg/L)	0.3	0.29	0.12
24	Sodium as Na (mg/L)	-	NA	222
25	Potassium as K (mg/L)	-	14.0	6.45
26	BOD (mg/L)	-	NA	<2.0
27	COD (mg/L)	-	NA	<4.0

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Some of the parameters are over the drinking water standard limit as per IS 10500:2012.***



Date of collection: 29.08.2023 at 5.02 pm

Sample code : 7

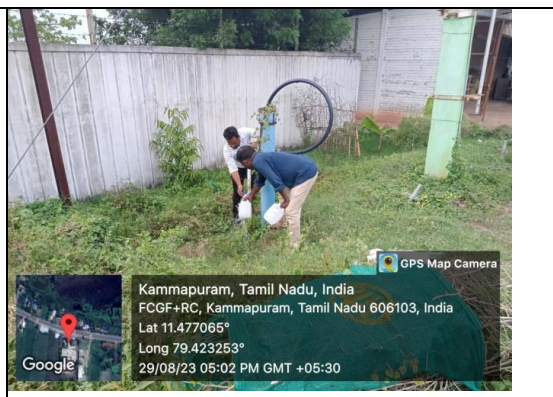
Location	Type of water body	Purpose of use
Kammapuram Village Lat & Long: 11. 477065, 79.423253	Ground Water- Tube well	Drinking

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EC compliance report, 2004)	TNPCB Committee Result
1.	pH	6.5-8.5	8.24	8.63
2.	Conductivity (µs/cm)	-	634	634
3.	TDS (mg/L)	500	374	396
4.	Turbidity (NTU)	1	NA	<0.1
5.	Chloride as Cl (mg/L)	250	54	76.4
6.	Sulphate as So ₄ (mg/L)	200	27.57	77.1
7.	Zinc as Zn (mg/L)	5	1.106	<0.005
8.	Cadmium as Cd (mg/L)	0.003	NA	<0.005
9.	Nickel as Ni (mg/L)	0.02	NA	<0.005
10.	Lead as Pb (mg/L)	0.01	NA	<0.005
11.	Arsenic as As (mg/L)	0.01	NA	<0.005
12.	Total Chromium as Cr (mg/L)	0.05	NA	<0.005
13.	Mercury as Hg (mg/L)	0.001	NA	<0.001
14.	Selenium as Se (mg/L)	0.01	NA	<0.005
15.	Boron as B (mg/L)	0.5	NA	0.13
16.	Total Hardness as CaCO ₃ (mg/L)	200	172	200
17.	Calcium as Ca (mg/L)	75	22.4	46.8
18.	Magnesium as Mg (mg/L)	30	28.1	20.2
19.	Manganese as Mn (mg/L)	0.1	0.006	<0.01
20.	Sulphide as H ₂ S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	0.026
22.	Total Alkalinity as CaCO ₃ (mg/L)	200	276	193
23.	Iron as Fe (mg/L)	0.3	0.1	<0.05
24.	Sodium as Na (mg/L)	-	96.6	54.2
25.	Potassium as K (mg/L)	-	3.05	2.84
26.	BOD (mg/L)	-	NA	5.0
27.	COD (mg/L)	-	NA	12.0

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, All the parameters are within the drinking water standard limit as per IS 10500:2012 except pH (8.63/8.5).***



Date of collection: 29.08.2023 at 5.15 pm

Sample code : 8

Location	Type of water body	Purpose of use
Chinnakottumulai village Lat & Long: 11.452146, 79.451226	Ground Water- Tube well	Drinking

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EC compliance report, 2004)	TNPCB Committee Result
1.	pH	6.5-8.5	8.37	8.34
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	691	1012
3.	TDS (mg/L)	500	430	632
4.	Turbidity (NTU)	1	NA	<0.1
5.	Chloride as Cl (mg/L)	250	70	160
6.	Sulphate as So_4 (mg/L)	200	5.76	87.6
7.	Zinc as Zn (mg/L)	5	0.088	<0.005
8.	Cadmium as Cd (mg/L)	0.003	NA	<0.005
9.	Nickel as Ni (mg/L)	0.02	NA	<0.005
10.	Lead as Pb (mg/L)	0.01	NA	<0.005
11.	Arsenic as As (mg/L)	0.01	NA	<0.005
12.	Total Chromium as Cr (mg/L)	0.05	NA	<0.005
13.	Mercury as Hg (mg/L)	0.001	NA	<0.001
14.	Selenium as Se (mg/L)	0.01	NA	<0.005
15.	Boron as B (mg/L)	0.5	NA	0.41
16.	Total Hardness as CaCo_3(mg/L)	200	124	376
17.	Calcium as Ca (mg/L)	75	9.60	56.4
18.	Magnesium as Mg (mg/L)	30	24.30	57.1
19.	Manganese as Mn (mg/L)	0.1	BDL	0.037
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	<0.01
22.	Total Alkalinity as CaCo_3 (mg/L)	200	332	272
23.	Iron as Fe (mg/L)	0.3	0.07	<0.05
24.	Sodium as Na (mg/L)	-	139	74.4
25.	Potassium as K (mg/L)	-	3.61	2.76
26.	BOD (mg/L)	-	NA	3.0
27.	COD (mg/L)	-	NA	8.0

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. **Also, the parameters are within the drinking water standard limit as per IS 10500:2012 except TDS (632/500), Total Hardness (376/200), Magnesium (57.1/30) and Total Alkalinity (272/200)**



Date of collection: 29.08.2023 at 4.10 pm

Sample code : 9

Location	Type of water body	Purpose of use
Arasakuzhi village Lat & Long: 11.531975, 79.393183	Ground Water- Tube well	Drinking

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EC compliance report, 2004)	TNPCB Committee Result
1.	pH	6.5-8.5	8.20	8.31
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	175	217
3.	TDS (mg/L)	500	110	138
4.	Turbidity (NTU)	1	NA	<0.1
5.	Chloride as Cl (mg/L)	250	24	26.4
6.	Sulphate as So_4 (mg/L)	200	13.30	14.7
7.	Zinc as Zn (mg/L)	5	4.54	0.062
8.	Cadmium as Cd (mg/L)	0.003	NA	<0.005
9.	Nickel as Ni (mg/L)	0.02	NA	<0.005
10.	Lead as Pb (mg/L)	0.01	NA	<0.005
11.	Arsenic as As (mg/L)	0.01	NA	<0.005
12.	Total Chromium as Cr (mg/L)	0.05	NA	<0.005
13.	Mercury as Hg (mg/L)	0.001	NA	<0.001
14.	Selenium as Se (mg/L)	0.01	NA	<0.005
15.	Boron as B (mg/L)	0.5	NA	0.51
16.	Total Hardness as CaCo_3 (mg/L)	200	36	81.2
17.	Calcium as Ca (mg/L)	75	12.00	25
18.	Magnesium as Mg (mg/L)	30	1.40	4.52
19.	Manganese as Mn (mg/L)	BDL	BDL	<0.01
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	0.038
22.	Total Alkalinity as CaCo_3 (mg/L)	200	88	49.5
23.	Iron as Fe (mg/L)	0.3	0.05	<0.05
24.	Sodium as Na (mg/L)	-	3.60	5.64
25.	Potassium as K (mg/L)	-	1.24	<1
26.	BOD (mg/L)	-	NA	<2.0
27.	COD (mg/L)	-	NA	<4.0

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. **Also, All the parameters are within the drinking water standard limit as per IS 10500:2012 except Boron (0.51/0.5)**



Date of collection: 29.08.2023 at 6.25 pm

Sample code : 10

Location	Type of water body	Purpose of use
Karunkuzhi village Lat & Long: 11.48432, 79.513576	Ground Water- Tube well	Drinking

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EC compliance report, 2004)	TNPCB Committee Result
1.	pH	6.5-8.5	8.24	8.66
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	489	720
3.	TDS (mg/L)	500	283	452
4.	Turbidity (NTU)	1	NA	<0.1
5.	Chloride as Cl (mg/L)	250	70	123
6.	Sulphate as So_4 (mg/L)	200	29.20	57.6
7.	Zinc as Zn (mg/L)	5	BDL	0.115
8.	Cadmium as Cd (mg/L)	0.003	NA	<0.005
9.	Nickel as Ni (mg/L)	0.02	NA	0.031
10.	Lead as Pb (mg/L)	0.01	NA	<0.005
11.	Arsenic as As (mg/L)	0.01	NA	<0.005
12.	Total Chromium as Cr (mg/L)	0.05	NA	<0.005
13.	Mercury as Hg (mg/L)	0.001	NA	<0.001
14.	Selenium as Se (mg/L)	0.01	NA	<0.005
15.	Boron as B (mg/L)	0.5	NA	0.2
16.	Total Hardness as CaCo_3(mg/L)	200	92	202
17.	Calcium as Ca (mg/L)	75	22.57	51.6
18.	Magnesium as Mg (mg/L)	30	8.75	17.7
19.	Manganese as Mn (mg/L)	0.1	BDL	<0.01
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	<0.01
22.	Total Alkalinity as CaCo_3 (mg/L)	200	160	119
23.	Iron as Fe (mg/L)	0.3	0.17	<0.05
24.	Sodium as Na (mg/L)	-	84.40	32.6
25.	Potassium as K (mg/L)	-	4.92	2.14
26.	BOD (mg/L)	-	NA	<2.0
27.	COD (mg/L)	-	NA	<4.0

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, the parameters are within the drinking water standard limit as per IS 10500:2012 except Hardness (202/200)***



Date of collection: 29.08.2023 at 11.50 am

Sample code : 11

Location	Type of water body	Purpose of use
Block 28, Mariyamman Kovil, NLC Township Lat & Long: 11.602245, 79.473657	Ground Water- Dug well	Temple Use

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EC compliance report, 2008)	TNPCB Committee Result
1.	pH	6.5-8.5	7.45	8.66
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	1200	720
3.	TDS (mg/L)	500	754	452
4.	Turbidity (NTU)	1	NA	<0.1
5.	Chloride as Cl (mg/L)	250	146	123
6.	Sulphate as So_4 (mg/L)	200	287.8	57.6
7.	Zinc as Zn (mg/L)	5	BDL	0.115
8.	Cadmium as Cd (mg/L)	0.003	NA	<0.005
9.	Nickel as Ni (mg/L)	0.02	NA	0.031
10.	Lead as Pb (mg/L)	0.01	NA	<0.005
11.	Arsenic as As (mg/L)	0.01	NA	<0.005
12.	Total Chromium as Cr (mg/L)	0.05	NA	<0.005
13.	Mercury as Hg (mg/L)	0.001	NA	<0.001
14.	Selenium as Se (mg/L)	0.01	NA	<0.005
15.	Boron as B (mg/L)	0.5	NA	0.2
16.	Total Hardness as CaCo_3 (mg/L)	200	297	202
17.	Calcium as Ca (mg/L)	75	90.2	51.6
18.	Magnesium as Mg (mg/L)	30	17.4	17.7
19.	Manganese as Mn (mg/L)	0.1	0.195	<0.01
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	<0.01
22.	Total Alkalinity as CaCo_3 (mg/L)	200	116	119
23.	Iron as Fe (mg/L)	0.3	0.42	<0.05
24.	Sodium as Na (mg/L)	-	140.16	32.6
25.	Potassium as K (mg/L)	-	14.7	2.14
26.	BOD (mg/L)	-	NA	<2.0
27.	COD (mg/L)	-	NA	<4.0

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, All the parameters are within the drinking water standard limit as per IS 10500:2012 except pH (8.66/8.5) and Total Hardness (202/200).***



Date of collection: 29.08.2023 at 11.00 am

Sample code : 12

Location	Type of water body	Purpose of use
Block 9, Ragavendra Kovil, NLC Township Lat & Long: 11.613183, 79.507699	Ground Water- Dug well	Temple Use

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EC compliance report, 2008)	TNPCB Committee Result
1.	pH	6.5-8.5	7.36	8.10
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	275	251
3.	TDS (mg/L)	500	176	185
4.	Turbidity (NTU)	1	NA	<0.1
5.	Chloride as Cl (mg/L)	250	43	22.6
6.	Sulphate as So_4 (mg/L)	200	28.35	4.3
7.	Zinc as Zn (mg/L)	5	BDL	0.031
8.	Cadmium as Cd (mg/L)	0.003	NA	<0.005
9.	Nickel as Ni (mg/L)	0.02	NA	0.015
10.	Lead as Pb (mg/L)	0.01	NA	<0.005
11.	Arsenic as As (mg/L)	0.01	NA	<0.005
12.	Total Chromium as Cr (mg/L)	0.05	NA	<0.005
13.	Mercury as Hg (mg/L)	0.001	NA	<0.001
14.	Selenium as Se (mg/L)	0.01	NA	<0.005
15.	Boron as B (mg/L)	0.5	NA	<0.1
16.	Total Hardness as CaCo_3 (mg/L)	200	53	39.6
17.	Calcium as Ca (mg/L)	75	15.4	11.3
18.	Magnesium as Mg (mg/L)	30	3.6	2.75
19.	Manganese as Mn (mg/L)	0.1	BDL	<0.01
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	0.012
22.	Total Alkalinity as CaCo_3 (mg/L)	200	84	29.5
23.	Iron as Fe (mg/L)	0.3	0.3	<0.05
24.	Sodium as Na (mg/L)	-	51.15	9.1
25.	Potassium as K (mg/L)	-	0.5	1.5
26.	BOD (mg/L)	-	NA	<2.0
27.	COD (mg/L)	-	NA	4.0

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, All the parameters are within the drinking water standard limit as per IS 10500:2012.***



Date of collection: 29.08.2023 at 7.00 pm

Sample code : 13

Location	Type of water body	Purpose of use
Vadalur Sabai Lat & Long: 11.548187, 79.545985	Ground Water- Dug well	Temple Use

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EC compliance report, 2010)	TNPCB Committee Result
1	pH	6.5-8.5	6.89	8.32
2	Conductivity ($\mu\text{s}/\text{cm}$)	-	621	560
3	TDS (mg/L)	500	377	359
4	Turbidity (NTU)	1	NA	<0.1
5	Chloride as Cl (mg/L)	250	96	60.4
6	Sulphate as So_4 (mg/L)	200	71	96.4
7	Zinc as Zn (mg/L)	5	-	0.026
8	Cadmium as Cd (mg/L)	0.003	NA	<0.005
9	Nickel as Ni (mg/L)	0.02	NA	<0.005
10	Lead as Pb (mg/L)	0.01	NA	<0.005
11	Arsenic as As (mg/L)	0.01	NA	<0.005
12	Total Chromium as Cr (mg/L)	0.05	NA	<0.005
13	Mercury as Hg (mg/L)	0.001	NA	<0.001
14	Selenium as Se (mg/L)	0.01	NA	<0.005
15	Boron as B (mg/L)	0.5	NA	0.236
16	Total Hardness as CaCo_3(mg/L)	200	144	224
17	Calcium as Ca (mg/L)	75	48.0	84.8
18	Magnesium as Mg (mg/L)	30	5.8	2.92
19	Manganese as Mn (mg/L)	0.1	-	<0.01
20	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21	Aluminium as Al (mg/L)	0.03	NA	<0.01
22	Total Alkalinity as CaCo_3 (mg/L)	200	128	59.4
23	Iron as Fe (mg/L)	0.3	0.30	<0.05
24	Sodium as Na (mg/L)	-	82.1	39
25	Potassium as K (mg/L)	-	1.9	2.7
26	BOD (mg/L)	-	NA	6.0
27	COD (mg/L)	-	NA	16

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, All the parameters are within the drinking water standard limit as per IS 10500:2012 except Hardness (224/200) and Calcium (84.8/75)***



Date of collection: 29.08.2023 at 6.20 pm

Sample code : 14

Location	Type of water body	Purpose of use
Karunkuzhi Temple Lat & Long: 11.48432, 79.513576	Ground Water- Dug well	Temple Use

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EC compliance report, 2003)	TNPCB Committee Result
1.	pH	6.5-8.5	6.54	8.75
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	1869	810
3.	TDS (mg/L)	500	1100.0	512
4.	Turbidity (NTU)	1	NA	<0.1
5.	Chloride as Cl (mg/L)	250	395.00	160
6.	Sulphate as SO_4 (mg/L)	200	127.23	70.2
7.	Zinc as Zn (mg/L)	5	0.32	<0.005
8.	Cadmium as Cd (mg/L)	0.003	NA	<0.005
9.	Nickel as Ni (mg/L)	0.02	NA	<0.005
10.	Lead as Pb (mg/L)	0.01	NA	<0.005
11.	Arsenic as As (mg/L)	0.01	NA	<0.005
12.	Total Chromium as Cr (mg/L)	0.05	NA	<0.005
13.	Mercury as Hg (mg/L)	0.001	NA	<0.001
14.	Selenium as Se (mg/L)	0.01	NA	<0.005
15.	Boron as B (mg/L)	0.5	NA	0.194
16.	Total Hardness as CaCO_3 (mg/L)	200	388.0	273
17.	Calcium as Ca (mg/L)	75	104.80	80.8
18.	Magnesium as Mg (mg/L)	30	30.61	17.3
19.	Manganese as Mn (mg/L)	0.1	0.13	<0.01
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	0.018
22.	Total Alkalinity as CaCO_3 (mg/L)	200	264.0	139
23.	Iron as Fe (mg/L)	0.3	0.26	0.214
24.	Sodium as Na (mg/L)	-	204.00	59
25.	Potassium as K (mg/L)	-	7.20	31.5
26.	BOD (mg/L)	-	NA	2.8
27.	COD (mg/L)	-	NA	8.0

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, some of the parameters are within the drinking water standard limit as per IS 10500:2012 except pH (8.75/8.5), TDS (512/500), Hardness (273/200) and Calcium (80.8/75)***



Date of collection: 29.08.2023 at 3.08 pm

Sample code : 15

Location	Type of water body	Purpose of use
Veppankurichi village Lat & Long: 11.538721, 79.471574	Ground Water- Dug well	Domestic Use

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EC compliance report, 2013)	TNPCB Committee Result
1.	pH	6.5-8.5	8.17	8.27
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	1406	820
3.	TDS (mg/L)	500	860	526
4.	Turbidity (NTU)	1	NA	<0.1
5.	Chloride as Cl (mg/L)	250	330	113
6.	Sulphate as So_4 (mg/L)	200	322	178
7.	Zinc as Zn (mg/L)	5	0.040	<0.005
8.	Cadmium as Cd (mg/L)	0.003	NA	<0.005
9.	Nickel as Ni (mg/L)	0.02	NA	<0.005
10.	Lead as Pb (mg/L)	0.01	NA	<0.005
11.	Arsenic as As (mg/L)	0.01	NA	<0.005
12.	Total Chromium as Cr (mg/L)	0.05	NA	<0.005
13.	Mercury as Hg (mg/L)	0.001	NA	<0.001
14.	Selenium as Se (mg/L)	0.01	NA	<0.005
15.	Boron as B (mg/L)	0.5	NA	0.335
16.	Total Hardness as CaCo_3(mg/L)	200	320	315
17.	Calcium as Ca (mg/L)	75	76	65.6
18.	Magnesium as Mg (mg/L)	30	31.6	36.7
19.	Manganese as Mn (mg/L)	0.1	0.024	0.028
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	<0.01
22.	Total Alkalinity as CaCo_3 (mg/L)	200	120	168
23.	Iron as Fe (mg/L)	0.3	0.12	<0.05
24.	Sodium as Na (mg/L)	-	26	78.4
25.	Potassium as K (mg/L)	-	12.2	8.9
26.	BOD (mg/L)	-	NA	7
27.	COD (mg/L)	-	NA	16

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, All some of the parameters are within the drinking water standard limit as per IS 10500:2012 except TDS (526/500), Hardness (315/200) and Magnesium (36.7/30)***



Date of collection: 29.08.2023 at 4.05 pm

Sample code : 16

Location	Type of water body	Purpose of use
Arasakuzhi village Lat & Long: 11.523401, 79.388614	Ground Water- Dug well	Domestic Use

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EC compliance report, 2009)	TNPCB Committee Result
1.	pH	6.5-8.5	8.25	8.67
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	169	645
3.	TDS (mg/L)	500	176	387
4.	Turbidity (NTU)	1	NA	<0.1
5.	Chloride as Cl (mg/L)	250	28	97.1
6.	Sulphate as SO_4 (mg/L)	200	17.45	85.3
7.	Zinc as Zn (mg/L)	5	0.028	0.039
8.	Cadmium as Cd (mg/L)	0.003	NA	<0.005
9.	Nickel as Ni (mg/L)	0.02	NA	<0.005
10.	Lead as Pb (mg/L)	0.01	NA	<0.005
11.	Arsenic as As (mg/L)	0.01	NA	<0.005
12.	Total Chromium as Cr (mg/L)	0.05	NA	<0.005
13.	Mercury as Hg (mg/L)	0.001	NA	<0.001
14.	Selenium as Se (mg/L)	0.01	NA	<0.005
15.	Boron as B (mg/L)	0.5	NA	0.358
16.	Total Hardness as CaCO_3 (mg/L)	200	72	265
17.	Calcium as Ca (mg/L)	75	20.8	70.4
18.	Magnesium as Mg (mg/L)	30	4.86	21.6
19.	Manganese as Mn (mg/L)	0.1	0.003	0.112
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	<0.01
22.	Total Alkalinity as CaCO_3 (mg/L)	200	56	139
23.	Iron as Fe (mg/L)	0.3	0.19	<0.05
24.	Sodium as Na (mg/L)	-	8.6	37.5
25.	Potassium as K (mg/L)	-	0.88	3.3
26.	BOD (mg/L)	-	NA	2.4
27.	COD (mg/L)	-	NA	8.0

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, All some of the parameters are within the drinking water standard limit as per IS 10500:2012 except pH (8.67/8.5), Hardness (265/200).***



Date of collection: 29.08.2023 at 12.39 pm

Sample code : 17

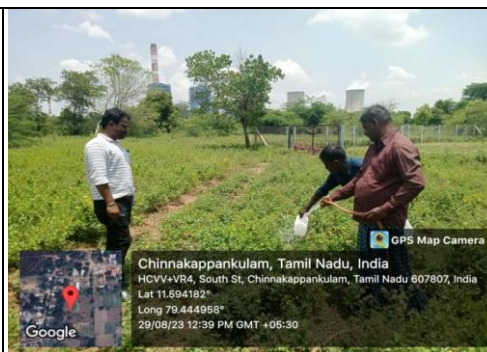
Location	Type of water body	Purpose of use
Kaikalaikuppam village Lat & Long: 11.594182, 79.444958	Ground Water- Dug well	Gardening

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EC compliance report, 2013)	TNPCB Committee Result
1.	pH	6.5-8.5	7.16	8.53
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	722	351
3.	TDS (mg/L)	500	454	224
4.	Turbidity (NTU)	1	NA	<0.1
5.	Chloride as Cl (mg/L)	250	87	35.8
6.	Sulphate as So_4 (mg/L)	200	120.49	24.2
7.	Zinc as Zn (mg/L)	5	0.007	<0.005
8.	Cadmium as Cd (mg/L)	0.003	NA	<0.005
9.	Nickel as Ni (mg/L)	0.02	NA	<0.005
10.	Lead as Pb (mg/L)	0.01	NA	<0.005
11.	Arsenic as As (mg/L)	0.01	NA	<0.005
12.	Total Chromium as Cr (mg/L)	0.05	NA	<0.005
13.	Mercury as Hg (mg/L)	0.001	NA	<0.001
14.	Selenium as Se (mg/L)	0.01	NA	<0.005
15.	Boron as B (mg/L)	0.5	NA	0.409
16.	Total Hardness as CaCo_3 (mg/L)	200	162	105
17.	Calcium as Ca (mg/L)	75	49	32.3
18.	Magnesium as Mg (mg/L)	30	9.53	5.88
19.	Manganese as Mn (mg/L)	0.1	BDL	0.026
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	0.061
22.	Total Alkalinity as CaCo_3 (mg/L)	200	137	79.2
23.	Iron as Fe (mg/L)	0.3	0.25	0.11
24.	Sodium as Na (mg/L)	-	83.07	15.3
25.	Potassium as K (mg/L)	-	1.24	3.9
26.	BOD (mg/L)	-	NA	7
27.	COD (mg/L)	-	NA	16.0

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, all the parameters are within the drinking water standard limit as per IS 10500:2012 except pH (8.53/8.5).***



Date of collection: 29.08.2023 at 12.47 pm

Sample code : 18

Location	Type of water body	Purpose of use
Melakuppam village Lat & Long: 11.593415, 79.448717	Ground Water- Dug well	Domestic

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EC compliance report, 2010)	TNPCB Committee Result
1.	pH	6.5-8.5	6.45	6.68
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	176	686
3.	TDS (mg/L)	500	117	435
4.	Turbidity (NTU)	1	NA	<0.1
5.	Chloride as Cl (mg/L)	250	26	65.1
6.	Sulphate as So_4 (mg/L)	200	11	94.4
7.	Zinc as Zn (mg/L)	5	0.138	<0.005
8.	Cadmium as Cd (mg/L)	0.003	NA	<0.005
9.	Nickel as Ni (mg/L)	0.02	NA	0.010
10.	Lead as Pb (mg/L)	0.01	NA	<0.005
11.	Arsenic as As (mg/L)	0.01	NA	<0.005
12.	Total Chromium as Cr (mg/L)	0.05	NA	<0.005
13.	Mercury as Hg (mg/L)	0.001	NA	<0.001
14.	Selenium as Se (mg/L)	0.01	NA	<0.005
15.	Boron as B (mg/L)	0.5	NA	0.357
16.	Total Hardness as CaCo_3(mg/L)	200	52	269
17.	Calcium as Ca (mg/L)	75	16	76
18.	Magnesium as Mg (mg/L)	30	2.9	19.2
19.	Manganese as Mn (mg/L)	0.1	0.03	0.025
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	<0.01
22.	Total Alkalinity as CaCo_3 (mg/L)	200	56	59.4
23.	Iron as Fe (mg/L)	0.3	0.1	<0.05
24.	Sodium as Na (mg/L)	-	21.1	30.9
25.	Potassium as K (mg/L)	-	1.62	13.5
26.	BOD (mg/L)	-	NA	<2.0
27.	COD (mg/L)	-	NA	<4.0

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. **Also, All the parameters are within the drinking water standard limit as per IS 10500:2012 except Total Hardness (269/200) and Calcium (76/75).**



Date of collection: 29.08.2023 at 3.37 pm

Sample code : 19

Location	Type of water body	Purpose of use
Velikkunankurichi village Lat & Long: 11.54581, 79.451821	Ground Water	Drinking

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EIA Report, 2009)	TNPCB Committee Result
1.	pH	6.5-8.5	6.67	8.67
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	342	489
3.	TDS (mg/L)	500	219	321
4.	Turbidity (NTU)	1	<5	<0.1
5.	Chloride as Cl (mg/L)	250	25	52.8
6.	Sulphate as So_4 (mg/L)	200	20	52.1
7.	Zinc as Zn (mg/L)	5	BDL	<0.005
8.	Cadmium as Cd (mg/L)	0.003	BDL	<0.005
9.	Nickel as Ni (mg/L)	0.02	NA	<0.005
10.	Lead as Pb (mg/L)	0.01	BDL	<0.005
11.	Arsenic as As (mg/L)	0.01	BDL	<0.005
12.	Total Chromium as Cr (mg/L)	0.05	BDL	<0.005
13.	Mercury as Hg (mg/L)	0.001	BDL	<0.001
14.	Selenium as Se (mg/L)	0.01	BDL	<0.005
15.	Boron as B (mg/L)	0.5	BDL	0.21
16.	Total Hardness as CaCo_3 (mg/L)	200	154	184
17.	Calcium as Ca (mg/L)	75	38	43.6
18.	Magnesium as Mg (mg/L)	30	14	18.2
19.	Manganese as Mn (mg/L)	0.1	BDL	0.021
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	BDL	<0.01
22.	Total Alkalinity as CaCo_3 (mg/L)	200	120	104
23.	Iron as Fe (mg/L)	0.3	0.36	0.22
24.	Sodium as Na (mg/L)	-	NA	12.3
25.	Potassium as K (mg/L)	-	NA	<1
26.	BOD (mg/L)	-	NA	<2.0
27.	COD (mg/L)	-	NA	4.0
28.	Fluoride (mg/L)	1.0	0.3	

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, all the parameters are within the drinking water standard limit as per IS 10500:2012.***



Date of collection: 29.08.2023 at 1.02 pm

Sample code : 20

Location	Type of water body	Purpose of use
Nainarkuppam Village Lat & Long: 11.579975, 79.444818	Ground Water	Domestic

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EIA Report, 2009)	TNPCB Committee Result
1.	pH	6.5-8.5	6.67	8.55
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	71	510
3.	TDS (mg/L)	500	45	324
4.	Turbidity (NTU)	1	<5	<0.1
5.	Chloride as Cl (mg/L)	250	12	53.7
6.	Sulphate as So_4 (mg/L)	200	0.8	69.6
7.	Zinc as Zn (mg/L)	5	BDL	<0.005
8.	Cadmium as Cd (mg/L)	0.003	BDL	<0.005
9.	Nickel as Ni (mg/L)	0.02	NA	<0.005
10.	Lead as Pb (mg/L)	0.01	BDL	<0.005
11.	Arsenic as As (mg/L)	0.01	BDL	<0.005
12.	Total Chromium as Cr (mg/L)	0.05	BDL	<0.005
13.	Mercury as Hg (mg/L)	0.001	BDL	<0.001
14.	Selenium as Se (mg/L)	0.01	BDL	<0.005
15.	Boron as B (mg/L)	0.5	BDL	0.451
16.	Total Hardness as CaCo_3 (mg/L)	200	36	172
17.	Calcium as Ca (mg/L)	75	13	34.8
18.	Magnesium as Mg (mg/L)	30	0.97	20.7
19.	Manganese as Mn (mg/L)	0.1	BDL	0.059
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	BDL	0.420
22.	Total Alkalinity as CaCo_3 (mg/L)	200	22	104
23.	Iron as Fe (mg/L)	0.3	0.19	0.24
24.	Sodium as Na (mg/L)	-	NA	23.9
25.	Potassium as K (mg/L)	-	NA	14
26.	BOD (mg/L)	-	NA	<2.0
27.	COD (mg/L)	-	NA	<4.0
28.	Fluoride (mg/L)	1.0	0.1	

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data.

Also, all the parameters are within the drinking water standard limit as per IS 10500:2012 except pH (8.55/ 8.5) and Aluminium (0.420/0.03).



Date of collection: 29.08.2023 at 2.54 pm

Sample code : 21

Location	Type of water body	Purpose of use
Kattu Kunankurichi Lat & Long: 11.54745, 79.43861	Surface Water	Public Use

S. No	Test Parameters	Water Quality Standards (as per IS: 2296)	Baseline Data (EIA Report, 2018)	TNPCB Committee Result
1.	pH	8.5	8.04	8.51
2.	Conductivity ($\mu\text{s}/\text{cm}$)	2250	942	1162
3.	TDS (mg/L)	2100	685	736
4.	Turbidity (NTU)	-	9	37
5.	Chloride as Cl (mg/L)	600	125	193
6.	Sulphate as So_4 (mg/L)	1000	95.4	236
7.	Zinc as Zn (mg/L)	-	2.73	< 0.005
8.	Cadmium as Cd (mg/L)	-	BDL	< 0.005
9.	Nickel as Ni (mg/L)	-	BDL	0.006
10.	Lead as Pb (mg/L)	-	BDL	< 0.005
11.	Arsenic as As (mg/L)	-	BDL	< 0.005
12.	Total Chromium as Cr (mg/L)	-	BDL	< 0.005
13.	Mercury as Hg (mg/L)	-	BDL	< 0.001
14.	Selenium as Se (mg/L)	-	BDL	< 0.005
15.	Boron as B (mg/L)	2	0.014	0.365
16.	Total Hardness as CaCo_3 (mg/L)	-	360	446
17.	Calcium as Ca (mg/L)	-	105	76.8
18.	Magnesium as Mg (mg/L)	-	23.6	61.7
19.	Manganese as Mn (mg/L)	-	BDL	< 0.01
20.	Sulphide as H_2S (mg/L)	-	NA	<0.02
21.	Aluminium as Al (mg/L)	-	NA	< 0.01
22.	Total Alkalinity as CaCo_3 (mg/L)	-	126	173
23.	Iron as Fe (mg/L)	-	0.11	0.29
24.	Sodium as Na (mg/L)	-	82.6	96.2
25.	Potassium as K (mg/L)	-	14.5	10.5
26.	BOD (mg/L)	-	5.4	3
27.	COD (mg/L)	-	23.8	12

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, all the parameters are within the Water Quality Standards (as per IS: 2296, Class E – Water for irrigation, industrial cooling and controlled waste disposal) except pH (8.51/ 8.5).***



Date of collection: 29.08.2023 at 2.46 pm

Sample code : 22

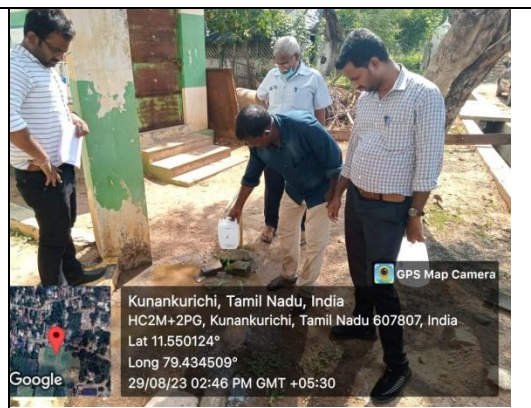
Location	Type of water body	Purpose of use
Kunankurichi village Lat & Long: 11.550124, 79.434509	Ground Water	Drinking

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EIA Report, 2018)	TNPCB Committee Result
1.	pH	6.5-8.5	8.23	8.06
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	1010	854
3.	TDS (mg/L)	500	613	538
4.	Turbidity (NTU)	1	BDL	<0.1
5.	Chloride as Cl (mg/L)	250	78	104
6.	Sulphate as So_4 (mg/L)	200	102	259
7.	Zinc as Zn (mg/L)	5	BDL	0.008
8.	Cadmium as Cd (mg/L)	0.003	BDL	< 0.005
9.	Nickel as Ni (mg/L)	0.02	BDL	0.032
10.	Lead as Pb (mg/L)	0.01	BDL	< 0.005
11.	Arsenic as As (mg/L)	0.01	BDL	< 0.005
12.	Total Chromium as Cr (mg/L)	0.05	BDL	< 0.005
13.	Mercury as Hg (mg/L)	0.001	BDL	< 0.001
14.	Selenium as Se (mg/L)	0.01	BDL	< 0.005
15.	Boron as B (mg/L)	0.5	BDL	0.204
16.	Total Hardness as CaCo_3(mg/L)	200	338	273
17.	Calcium as Ca (mg/L)	75	64	84.8
18.	Magnesium as Mg (mg/L)	30	36.6	14.8
19.	Manganese as Mn (mg/L)	0.1	BDL	< 0.01
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	< 0.01
22.	Total Alkalinity as CaCo_3 (mg/L)	200	126	44.6
23.	Iron as Fe (mg/L)	0.3	0.13	< 0.05
24.	Sodium as Na (mg/L)	-	83.5	61.9
25.	Potassium as K (mg/L)	-	12.9	2.5
26.	BOD (mg/L)	-	BDL	<2.0
27.	COD (mg/L)	-	BDL	<4.0

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, some of the parameters are within the drinking water standard limit as per IS 10500:2012 except TDS (538/500), Sulphate (259/200), Total Hardness (273/200) and Calcium (84.8/75).***



Date of collection: 29.08.2023 at 3.56 pm

Sample code : 23

Location	Type of water body	Purpose of use
Uttangal village Lat & Long: 11.530315, 79.41812	Ground Water- Tube well	Temple use

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EIA Report, 2018)	TNPCB Committee Result
1.	pH	6.5-8.5	7.94	8.24
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	1967	520
3.	TDS (mg/L)	500	1481	341
4.	Turbidity (NTU)	1	BDL	<0.1
5.	Chloride as Cl (mg/L)	250	284	105
6.	Sulphate as So_4 (mg/L)	200	235	102
7.	Zinc as Zn (mg/L)	5	BDL	< 0.005
8.	Cadmium as Cd (mg/L)	0.003	BDL	< 0.005
9.	Nickel as Ni (mg/L)	0.02	BDL	0.015
10.	Lead as Pb (mg/L)	0.01	BDL	< 0.005
11.	Arsenic as As (mg/L)	0.01	BDL	< 0.005
12.	Total Chromium as Cr (mg/L)	0.05	BDL	< 0.005
13.	Mercury as Hg (mg/L)	0.001	BDL	< 0.001
14.	Selenium as Se (mg/L)	0.01	BDL	< 0.005
15.	Boron as B (mg/L)	0.5	0.0165	0.224
16.	Total Hardness as CaCo_3 (mg/L)	200	767	178
17.	Calcium as Ca (mg/L)	75	196	49.2
18.	Magnesium as Mg (mg/L)	30	64.2	13.4
19.	Manganese as Mn (mg/L)	0.1	BDL	<0.01
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	0.047
22.	Total Alkalinity as CaCo_3 (mg/L)	200	216	54.5
23.	Iron as Fe (mg/L)	0.3	0.12	< 0.05
24.	Sodium as Na (mg/L)	-	202	19.8
25.	Potassium as K (mg/L)	-	51.2	2.2
26.	BOD (mg/L)	-	BDL	<2.0
27.	COD (mg/L)	-	BDL	<4.0

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, some of the parameters are within the drinking water standard limit as per IS 10500:2012.***



Date of collection: 29.08.2023 at 4.24 pm

Sample code : 24

Location	Type of water body	Purpose of use
Mudhanai village Lat & Long: 11.569503, 79.403743	Ground Water- Tube well	Drinking

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (EIA Report, 2018)	TNPCB Committee Result
1.	pH	6.5-8.5	7.69	8.65
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	316	374
3.	TDS (mg/L)	500	217	236
4.	Turbidity (NTU)	1	BDL	<0.1
5.	Chloride as Cl (mg/L)	250	47.2	28.8
6.	Sulphate as So_4 (mg/L)	200	18.3	27.8
7.	Zinc as Zn (mg/L)	5	0.18	0.022
8.	Cadmium as Cd (mg/L)	0.003	BDL	< 0.005
9.	Nickel as Ni (mg/L)	0.02	BDL	< 0.005
10.	Lead as Pb (mg/L)	0.01	BDL	< 0.005
11.	Arsenic as As (mg/L)	0.01	BDL	< 0.005
12.	Total Chromium as Cr (mg/L)	0.05	BDL	< 0.005
13.	Mercury as Hg (mg/L)	0.001	BDL	< 0.001
14.	Selenium as Se (mg/L)	0.01	BDL	< 0.005
15.	Boron as B (mg/L)	0.5	BDL	0.3
16.	Total Hardness as CaCo_3 (mg/L)	200	80	121
17.	Calcium as Ca (mg/L)	75	18.6	33.1
18.	Magnesium as Mg (mg/L)	30	8.26	9.28
19.	Manganese as Mn (mg/L)	0.1	BDL	< 0.01
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	< 0.01
22.	Total Alkalinity as CaCo_3 (mg/L)	200	49	114
23.	Iron as Fe (mg/L)	0.3	0.04	< 0.05
24.	Sodium as Na (mg/L)	-	26.5	18.8
25.	Potassium as K (mg/L)	-	8.7	2.2
26.	BOD (mg/L)	-	BDL	<2.0
27.	COD (mg/L)	-	BDL	<4.0

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, some of the parameters are within the drinking water standard limit as per IS 10500:2012 except pH (8.65/8.5).***



Date of collection: 29.08.2023 at 11.36 am

Sample code : 25

Location	Type of water body	Purpose of use
Block -27, Perumal Kovil, NLC Township Lat & Long: 11.605445, 79.475713	Ground Water – Dug well	Temple Use

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (Bureau Veritas Report, 2022)	TNPCB Committee Result
1.	pH	6.5-8.5	6.95	7.88
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	920	743
3.	TDS (mg/L)	500	610	468
4.	Turbidity (NTU)	1	BLQ	<0.1
5.	Chloride as Cl (mg/L)	250	95.2	108
6.	Sulphate as SO_4 (mg/L)	200	193	213
7.	Zinc as Zn (mg/L)	5	NA	0.012
8.	Cadmium as Cd (mg/L)	0.003	NA	< 0.005
9.	Nickel as Ni (mg/L)	0.02	NA	0.023
10.	Lead as Pb (mg/L)	0.01	NA	< 0.005
11.	Arsenic as As (mg/L)	0.01	NA	< 0.005
12.	Total Chromium as Cr (mg/L)	0.05	NA	< 0.005
13.	Mercury as Hg (mg/L)	0.001	NA	< 0.001
14.	Selenium as Se (mg/L)	0.01	NA	< 0.005
15.	Boron as B (mg/L)	0.5	NA	0.308
16.	Total Hardness as CaCO_3(mg/L)	200	280	323
17.	Calcium as Ca (mg/L)	75	86.4	88.8
18.	Magnesium as Mg (mg/L)	30	15.7	24.5
19.	Manganese as Mn (mg/L)	0.1	0.03	0.020
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	< 0.01
22.	Total Alkalinity as CaCO_3 (mg/L)	200	25.2	34.7
23.	Iron as Fe (mg/L)	0.3	BLQ	< 0.05
24.	Sodium as Na (mg/L)	-	NA	48.9
25.	Potassium as K (mg/L)	-	NA	1.58
26.	BOD (mg/L)	-	NA	<2.0
27.	COD (mg/L)	-	NA	<4.0

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, all the parameters are within the drinking water standard limit as per IS 10500:2012 except Sulphate (213/200), Total Hardness (323/200) and Calcium (88.8/75)***



Date of collection: 29.08.2023 at 11.44 am

Sample code : 26

Location	Type of water body	Purpose of use
Block -28, Subramaniyar Kovil, NLC Township Lat & Long: 11.605492, 79.476167	Ground Water – Dug well	Temple Use

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (Bureau Veritas Report, 2022)	TNPCB Committee Result
1.	pH	6.5-8.5	6.71	8.23
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	136	602
3.	TDS (mg/L)	500	82	324
4.	Turbidity (NTU)	1	BDL	<0.1
5.	Chloride as Cl (mg/L)	250	12.6	59.4
6.	Sulphate as So_4 (mg/L)	200	BDL	62.8
7.	Zinc as Zn (mg/L)	5	NA	0.030
8.	Cadmium as Cd (mg/L)	0.003	NA	< 0.005
9.	Nickel as Ni (mg/L)	0.02	NA	0.006
10.	Lead as Pb (mg/L)	0.01	NA	< 0.005
11.	Arsenic as As (mg/L)	0.01	NA	< 0.005
12.	Total Chromium as Cr (mg/L)	0.05	NA	< 0.005
13.	Mercury as Hg (mg/L)	0.001	NA	< 0.001
14.	Selenium as Se (mg/L)	0.01	NA	< 0.005
15.	Boron as B (mg/L)	0.5	NA	0.286
16.	Total Hardness as CaCo_3(mg/L)	200	33.3	208
17.	Calcium as Ca (mg/L)	75	10.6	62.4
18.	Magnesium as Mg (mg/L)	30	1.66	12.6
19.	Manganese as Mn (mg/L)	0.1	BDL	< 0.01
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	< 0.01
22.	Total Alkalinity as CaCo_3 (mg/L)	200	24.1	64.4
23.	Iron as Fe (mg/L)	0.3	BDL	< 0.05
24.	Sodium as Na (mg/L)	-	NA	26.4
25.	Potassium as K (mg/L)	-	NA	11.8
26.	BOD (mg/L)	-	NA	2.0
27.	COD (mg/L)	-	NA	4.0

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, all the parameters are within the drinking water standard limit as per IS 10500:2012 except Total Hardness (208/200).***



Date of collection: 29.08.2023 at 7.23 pm

Sample code : 27

Location	Type of water body	Purpose of use
Ammeri Village Lat & Long: 11.540906, 79.464939	Ground Water – Tube well	Drinking

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	Baseline Data (Bureau Veritas Report, 2022)	TNPCB Committee Result
1.	pH	6.5-8.5	7.08	7.86
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	1580	392
3.	TDS (mg/L)	500	948	214
4.	Turbidity (NTU)	1	BDL	<0.1
5.	Chloride as Cl (mg/L)	250	229	40
6.	Sulphate as So_4 (mg/L)	200	328	26.5
7.	Zinc as Zn (mg/L)	5	NA	< 0.005
8.	Cadmium as Cd (mg/L)	0.003	NA	< 0.005
9.	Nickel as Ni (mg/L)	0.02	NA	0.010
10.	Lead as Pb (mg/L)	0.01	NA	< 0.005
11.	Arsenic as As (mg/L)	0.01	NA	< 0.005
12.	Total Chromium as Cr (mg/L)	0.05	NA	< 0.005
13.	Mercury as Hg (mg/L)	0.001	NA	< 0.001
14.	Selenium as Se (mg/L)	0.01	NA	< 0.005
15.	Boron as B (mg/L)	0.5	NA	0.293
16.	Total Hardness as CaCo_3 (mg/L)	200	502	141
17.	Calcium as Ca (mg/L)	75	154	37.2
18.	Magnesium as Mg (mg/L)	30	28.5	11.7
19.	Manganese as Mn (mg/L)	0.1	0.21	< 0.01
20.	Sulphide as H_2S (mg/L)	0.05	NA	<0.02
21.	Aluminium as Al (mg/L)	0.03	NA	< 0.01
22.	Total Alkalinity as CaCo_3 (mg/L)	200	50.4	94.1
23.	Iron as Fe (mg/L)	0.3	BDL	< 0.05
24.	Sodium as Na (mg/L)	-	NA	16.5
25.	Potassium as K (mg/L)	-	NA	1.26
26.	BOD (mg/L)	-	NA	5
27.	COD (mg/L)	-	NA	18

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, all the parameters are within the drinking water standard limit as per IS 10500:2012.***



Date of collection: 29.08.2023 at 12.29 pm

Sample code : 32

Location	Type of water body	Purpose of use
Kaikalaikuppam village Lat & Long: 11.594899, 79.450349	Surface Water	Domestic

S. No	Test Parameters	Water Quality Standards (as per IS: 2296)	Baseline Data (Bureau Veritas Report, 2022)	TNPCB Committee Result
1.	pH	8.5	7.05	7.42
2.	Conductivity (µs/cm)	2250	199	210
3.	TDS (mg/L)	2100	170	144
4.	Turbidity (NTU)	-	96.5	20
5.	Chloride as Cl (mg/L)	600	10.7	19.3
6.	Sulphate as So ₄ (mg/L)	1000	38.6	52.4
7.	Zinc as Zn (mg/L)	-	NA	< 0.005
8.	Cadmium as Cd (mg/L)	-	NA	< 0.005
9.	Nickel as Ni (mg/L)	-	NA	< 0.005
10.	Lead as Pb (mg/L)	-	NA	< 0.005
11.	Arsenic as As (mg/L)	-	NA	< 0.005
12.	Total Chromium as Cr (mg/L)	-	NA	< 0.005
13.	Mercury as Hg (mg/L)	-	NA	< 0.001
14.	Selenium as Se (mg/L)	-	NA	< 0.005
15.	Boron as B (mg/L)	2	NA	< 0.1
16.	Total Hardness as CaCO ₃ (mg/L)	-	57.8	103
17.	Calcium as Ca (mg/L)	-	17.6	26.9
18.	Magnesium as Mg (mg/L)	-	3.33	8.68
19.	Manganese as Mn (mg/L)	-	0.04	< 0.01
20.	Sulphide as H ₂ S (mg/L)	-	NA	<0.02
21.	Aluminium as Al (mg/L)	-	NA	< 0.01
22.	Total Alkalinity as CaCO ₃ (mg/L)	-	19.9	34.7
23.	Iron as Fe (mg/L)	-	0.25	0.09
24.	Sodium as Na (mg/L)	-	NA	4.3
25.	Potassium as K (mg/L)	-	NA	4.9
26.	BOD (mg/L)	-	NA	5
27.	COD (mg/L)	-	NA	12

NA- Not Analyzed

Inference

The report of analysis of the sample collected by the committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, all the parameters are within the Water Quality Standards (as per IS: 2296, Class E – Water for irrigation, industrial cooling and controlled waste disposal).***



ANNEXURE -38**REPORT OF ANALYSIS OF THE SAMPLES COLLECTED BY THE COMMITTEE**

Date of collection: 29.08.2023 at 5.29 pm

Sample code : 33

Location	Type of Sample
Kathazhai Lake near Neyveli Lat & Long:11.47601, 79.4676	Surface Water

S. No	Test Parameters	Water Quality Standards (as per IS: 2296)	TNPCB Committee Result
1.	pH	8.5	8.25
2.	Conductivity ($\mu\text{s}/\text{cm}$)	2250	895
3.	TDS (mg/L)	2100	556
4.	Turbidity (NTU)	-	77
5.	Chloride as Cl (mg/L)	600	151
6.	Sulphate as So_4 (mg/L)	1000	137
7.	Zinc as Zn (mg/L)	-	< 0.005
8.	Cadmium as Cd (mg/L)	-	< 0.005
9.	Nickel as Ni (mg/L)	-	0.006
10.	Lead as Pb (mg/L)	-	< 0.005
11.	Arsenic as As (mg/L)	-	< 0.005
12.	Total Chromium as Cr (mg/L)	-	< 0.005
13.	Mercury as Hg (mg/L)	-	< 0.001
14.	Selenium as Se (mg/L)	-	< 0.005
15.	Boron as B (mg/L)	2	0.249
16.	Total Hardness as CaCo_3 (mg/L)	-	246
17.	Calcium as Ca (mg/L)	-	52.3
18.	Magnesium as Mg (mg/L)	-	28.2
19.	Manganese as Mn (mg/L)	-	< 0.01
20.	Sulphide as H_2S (mg/L)	-	< 0.02
21.	Aluminium as Al (mg/L)	-	< 0.01
22.	Total Alkalinity as CaCo_3 (mg/L)	-	144
23.	Iron as Fe (mg/L)	-	0.44
24.	Sodium as Na (mg/L)	-	79.1
25.	Potassium as K (mg/L)	-	4.6
26.	BOD (mg/L)	-	16
27.	COD (mg/L)	-	39

NA- Not Analyzed

Inference

The report of analysis of committee reveals that all the parameters are within the Water Quality Standards (as per IS: 2296, Class E – Water for irrigation, industrial cooling and controlled waste disposal).



Date of collection: 29.08.2023 at 5.37 pm

Sample code : 34

Location	Type of Sample
Parawanar River U/S Lat & Long:11.47601, 79.4676	Surface Water

S. No	Test Parameters	Water Quality Standards (as per IS: 2296)	TNPCB Committee Result
1.	pH	8.5	8.55
2.	Conductivity ($\mu\text{s}/\text{cm}$)	2250	1295
3.	TDS (mg/L)	2100	806
4.	Turbidity (NTU)	-	45
5.	Chloride as Cl (mg/L)	600	184
6.	Sulphate as So_4 (mg/L)	1000	311
7.	Zinc as Zn (mg/L)	-	< 0.005
8.	Cadmium as Cd (mg/L)	-	< 0.005
9.	Nickel as Ni (mg/L)	-	0.006
10.	Lead as Pb (mg/L)	-	< 0.005
11.	Arsenic as As (mg/L)	-	< 0.005
12.	Total Chromium as Cr (mg/L)	-	< 0.005
13.	Mercury as Hg (mg/L)	-	< 0.001
14.	Selenium as Se (mg/L)	-	< 0.005
15.	Boron as B (mg/L)	2	0.306
16.	Total Hardness as CaCo_3 (mg/L)	-	430
17.	Calcium as Ca (mg/L)	-	77.6
18.	Magnesium as Mg (mg/L)	-	57.3
19.	Manganese as Mn (mg/L)	-	< 0.01
20.	Sulphide as H_2S (mg/L)	-	< 0.02
21.	Aluminium as Al (mg/L)	-	0.044
22.	Total Alkalinity as CaCo_3 (mg/L)	-	119
23.	Iron as Fe (mg/L)	-	0.53
24.	Sodium as Na (mg/L)	-	99.5
25.	Potassium as K (mg/L)	-	4.1
26.	BOD (mg/L)	-	<2.0
27.	COD (mg/L)	-	4.0

NA- Not Analyzed

Inference

The report of analysis of committee reveals that all the parameters are within the Water Quality Standards (as per IS: 2296, Class E – Water for irrigation, industrial cooling and controlled waste disposal) except (8.55/8.5).



Date of collection: 29.08.2023 at 6.01 pm

Sample code : 35

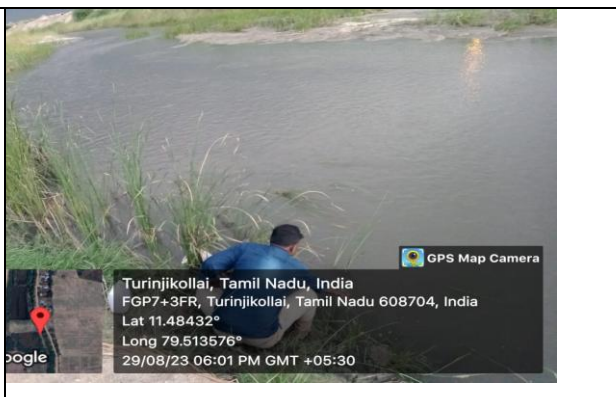
Location	Type of Sample
Parawanar River D/S Lat & Long:11.48432, 79.513576	Surface Water

S. No	Test Parameters	Water Quality Standards (as per IS: 2296)	TNPCB Committee Result
1.	pH	8.5	8.66
2.	Conductivity ($\mu\text{s}/\text{cm}$)	2250	1308
3.	TDS (mg/L)	2100	814
4.	Turbidity (NTU)	-	106
5.	Chloride as Cl (mg/L)	600	217
6.	Sulphate as So_4 (mg/L)	1000	279
7.	Zinc as Zn (mg/L)	-	< 0.005
8.	Cadmium as Cd (mg/L)	-	< 0.005
9.	Nickel as Ni (mg/L)	-	< 0.005
10.	Lead as Pb (mg/L)	-	< 0.005
11.	Arsenic as As (mg/L)	-	< 0.005
12.	Total Chromium as Cr (mg/L)	-	< 0.005
13.	Mercury as Hg (mg/L)	-	< 0.001
14.	Selenium as Se (mg/L)	-	< 0.005
15.	Boron as B (mg/L)	2	0.384
16.	Total Hardness as CaCo_3 (mg/L)	-	410
17.	Calcium as Ca (mg/L)	-	60.9
18.	Magnesium as Mg (mg/L)	-	62.7
19.	Manganese as Mn (mg/L)	-	< 0.01
20.	Sulphide as H_2S (mg/L)	-	<0.02
21.	Aluminium as Al (mg/L)	-	0.01
22.	Total Alkalinity as CaCo_3 (mg/L)	-	134
23.	Iron as Fe (mg/L)	-	1.46
24.	Sodium as Na (mg/L)	-	113
25.	Potassium as K (mg/L)	-	3.7
26.	BOD (mg/L)	-	12
27.	COD (mg/L)	-	43

NA- Not Analyzed

Inference

The report of analysis of committee reveals that all the parameters are within the Water Quality Standards (as per IS: 2296, Class E – Water for irrigation, industrial cooling and controlled waste disposal).



Date of collection: 29.08.2023 at 1.21 pm

Sample code : 36

Location	Type of Sample
Ash Pond Sample Lat:11.582119; Long: 79.449811	Dug well

S. No	Test Parameters	Drinking water Standard Limits as per IS 10500:2012	TNPCB Committee Result
1.	pH	6.5-8.5	7.01
2.	Conductivity ($\mu\text{s}/\text{cm}$)	-	1381
3.	TDS (mg/L)	500	882
4.	Turbidity (NTU)	1	34
5.	Chloride as Cl (mg/L)	250	137
6.	Sulphate as So_4 (mg/L)	200	185
7.	Zinc as Zn (mg/L)	5	0.012
8.	Cadmium as Cd (mg/L)	0.003	< 0.005
9.	Nickel as Ni (mg/L)	0.02	0.098
10.	Lead as Pb (mg/L)	0.01	< 0.005
11.	Arsenic as As (mg/L)	0.01	< 0.005
12.	Total Chromium as Cr (mg/L)	0.05	< 0.005
13.	Mercury as Hg (mg/L)	0.001	< 0.001
14.	Selenium as Se (mg/L)	0.01	< 0.005
15.	Boron as B (mg/L)	0.5	0.377
16.	Total Hardness as CaCo_3(mg/L)	200	447
17.	Calcium as Ca (mg/L)	75	175
18.	Magnesium as Mg (mg/L)	30	2.18
19.	Manganese as Mn (mg/L)	0.1	5.35
20.	Sulphide as H_2S (mg/L)	0.05	<0.02
21.	Aluminium as Al (mg/L)	0.03	< 0.01
22.	Total Alkalinity as CaCo_3 (mg/L)	200	14.9
23.	Iron as Fe (mg/L)	0.3	0.39
24.	Sodium as Na (mg/L)	-	89.9
25.	Potassium as K (mg/L)	-	5.3
26.	BOD (mg/L)	-	<2.0
27.	COD (mg/L)	-	12

NA- Not Analyzed

Inference

The report of analysis of committee reveals that there is no much variation in the above tested parameters when compared with baseline data. **Also, All the parameters are within the drinking water standard limit as per IS 10500:2012 except TDS (882/500), Total Hardness (447/200) and Calcium (175/75).**



Date of collection: 29.08.2023 at 5.11 pm

Sample code : 38

Location	Type of Sample	Purpose of use
NNTPS Lake water Lat:11.583109; Long: 79.46798	Surface Water	Industrial Purpose

S. No	Test Parameters	Water Quality Standards (as per IS: 2296)	Baseline Data (EIA Report, 2009)	TNPCB Committee Result
1.	pH	8.5	6.93	8.22
2.	Conductivity ($\mu\text{s}/\text{cm}$)	2250	672	462
3.	TDS (mg/L)	2100	430	294
4.	Turbidity (NTU)	-	<5	2
5.	Chloride as Cl (mg/L)	600	78	37.7
6.	Sulphate as So_4 (mg/L)	1000	85	79.5
7.	Zinc as Zn (mg/L)	-	BDL	0.007
8.	Cadmium as Cd (mg/L)	-	BDL	< 0.005
9.	Nickel as Ni (mg/L)	-		0.020
10.	Lead as Pb (mg/L)	-	BDL	< 0.005
11.	Arsenic as As (mg/L)	-	BDL	< 0.005
12.	Total Chromium as Cr (mg/L)	-	BDL	< 0.005
13.	Mercury as Hg (mg/L)	-	BDL	< 0.001
14.	Selenium as Se (mg/L)	-	BDL	< 0.005
15.	Boron as B (mg/L)	2	NA	0.209
16.	Total Hardness as CaCo_3 (mg/L)	-	216	178
17.	Calcium as Ca (mg/L)	-	52	43.6
18.	Magnesium as Mg (mg/L)	-	21.38	16.8
19.	Manganese as Mn (mg/L)	-	BDL	0.010
20.	Sulphide as H_2S (mg/L)	-	NA	<0.02
21.	Aluminium as Al (mg/L)	-	NA	0.033
22.	Total Alkalinity as CaCo_3 (mg/L)	-	140	54.5
23.	Iron as Fe (mg/L)	-	0.22	< 0.05
24.	Sodium as Na (mg/L)	-	NA	16.9
25.	Potassium as K (mg/L)	-	NA	1.2
26.	BOD (mg/L)	-	NA	<2.0
27.	COD (mg/L)	-	NA	8

NA- Not Analyzed

Inference

The report of analysis of committee reveals that all the parameters are within the Water Quality Standards (as per IS: 2296, Class E – Water for irrigation, industrial cooling and controlled waste disposal).



Date of collection: 29.08.2023 at 5.38 pm

Sample code : 39

Location	Type of Sample	Purpose of use
TPS Lake water Lat:11.557912; Long: 79.452423	Surface Water	Industrial Purpose

S. No	Test Parameters	Water Quality Standards (as per IS: 2296)	Baseline Data (Bureau Veritas Report, 2022)	TNPCB Committee Result
1.	pH	8.5	7.3	8.40
2.	Conductivity ($\mu\text{s}/\text{cm}$)	2250	540	998
3.	TDS (mg/L)	2100	378	632
4.	Turbidity (NTU)	-	4.3	<0.1
5.	Chloride as Cl (mg/L)	600	34.9	108
6.	Sulphate as So_4 (mg/L)	1000	139	184
7.	Zinc as Zn (mg/L)	-	NA	< 0.005
8.	Cadmium as Cd (mg/L)	-	NA	< 0.005
9.	Nickel as Ni (mg/L)	-	NA	0.016
10.	Lead as Pb (mg/L)	-	NA	< 0.005
11.	Arsenic as As (mg/L)	-	NA	< 0.005
12.	Total Chromium as Cr (mg/L)	-	NA	< 0.005
13.	Mercury as Hg (mg/L)	-	NA	< 0.001
14.	Selenium as Se (mg/L)	-	NA	< 0.005
15.	Boron as B (mg/L)	2	NA	0.345
16.	Total Hardness as CaCo_3 (mg/L)	-	172	323
17.	Calcium as Ca (mg/L)	-	47.9	62.6
18.	Magnesium as Mg (mg/L)	-	12.8	40.6
19.	Manganese as Mn (mg/L)	-	0.11	0.087
20.	Sulphide as H_2S (mg/L)	-	NA	<0.02
21.	Aluminium as Al (mg/L)	-	NA	< 0.01
22.	Total Alkalinity as CaCo_3 (mg/L)	-	37.8	153
23.	Iron as Fe (mg/L)	-	0.99	< 0.05
24.	Sodium as Na (mg/L)	-	NA	65.6
25.	Potassium as K (mg/L)	-	NA	3.4
26.	BOD (mg/L)	-	NA	<2.0
27.	COD (mg/L)	-	NA	<4.0

NA- Not Analyzed

Inference

The report of analysis of committee reveals that all the parameters are within the Water Quality Standards (as per IS: 2296, Class E – Water for irrigation, industrial cooling and controlled waste disposal).



Date of collection: 29.08.2023 at 12.53 pm

Sample code : 28

Location	Type of Sample
Kaikakuppam village soil sample Lat: 11.590563,Lon:79.446207	Soil

S. No	Test Parameters	Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (mg/kg)	As per Bureau Veritas Report, Aug 2022	TNPCB Committee Result
1.	pH at 25°C	-	NA	5.65
2.	Conductivity at 25°C	-	NA	53.9
3.	Moisture	-	NA	6.57
4.	Zinc as Zn	250	NA	10.05
5.	Cadmium as Cd	1.4	BLQ(LOQ:1.0)	< 0.5
6.	Nickel as Ni	45	NA	1.64
7.	Lead as Pb	70	BLQ(LOQ:1.0)	5.75
8.	Arsenic as As	12	BLQ(LOQ:1.0)	< 0.5
9.	Chromium as Cr	64	NA	2.52
10.	Mercury as Hg	6.6	NA	<0.04
11.	Selenium as Se	1.0	BLQ(LOQ:1.0)	<0.5
12.	Boron as B	-	NA	<0.5
13.	Calcium as Ca	-	10180	638.7
14.	Magnesium as Mg	-	BLQ(LOQ:1.0)	93.7
15.	Manganese as Mn	-	NA	191.5
16.	Aluminium as Al	-	NA	572.5
17.	Iron as Fe	-	NA	1160
18.	Potassium as K	-	134	26.17
19.	Sodium as Na	-	NA	14.89
20.	Chlorides as Cl	-	NA	156.5
21.	Total Soluble Sulphate as SO ₄	-	NA	0.17
22.	Total Hardness as CaCO ₃	-	NA	8646
23.	Sulphide	-	NA	<1.0
24.	Total Alkalinity as CaCO ₃	-	NA	119

NA- Not Analyzed

Inference

The report of analysis of committee reveals that there is no much variation in the above tested parameters when compared with baseline data. **Also, both the TNPCB Committee Result and baseline data are within the standard limit of Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health**



Date of collection: 29.08.2023 at 2.49 pm

Sample code : 29

Location	Type of Sample
Kunankurichi soil sample Lat: 11.550124, Lon:79.434509	Soil

S. No	Test Parameters	Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (mg/kg)	Environmental Impact Assessment Report, 2018	TNPCB Committee Result
1.	pH at 25°C	-	6.67	7.26
2.	Conductivity at 25°C	-	295	157.7
3.	Moisture	-	12.7	7.33
4.	Zinc as Zn	250	15.5	33.9
5.	Cadmium as Cd	1.4	1.122	< 0.5
6.	Nickel as Ni	45	NA	6.36
7.	Lead as Pb	70	NA	9.06
8.	Arsenic as As	12	NA	< 0.5
9.	Chromium as Cr	64	0.321	3.33
10.	Mercury as Hg	6.6	NA	< 0.04
11.	Selenium as Se	1.0	NA	< 0.5
12.	Boron as B	-	2.35	< 0.5
13.	Calcium as Ca	-	99	3227
14.	Magnesium as Mg	-	39	605.6
15.	Manganese as Mn	-	7.39	202.1
16.	Aluminium as Al	-	NA	2086
17.	Iron as Fe	-	99	1508
18.	Potassium as K	-	348	125.8
19.	Sodium as Na	-	NA	165.8
20.	Chlorides as Cl	-	NA	148
21.	Total Soluble Sulphate as SO ₄	-	NA	0.18
22.	Total Hardness as CaCO ₃	-	NA	30165
23.	Sulphide	-	NA	<1.0
24.	Total Alkalinity as CaCO ₃	-	NA	299

NA- Not Analyzed

Inference

The report of analysis of committee reveals that there is no much variation in the above tested parameters when compared with baseline data. ***Also, both the TNPCB Committee Result and baseline data are within the standard limit of Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health***



Date of collection: 29.08.2023 at 3.47 pm

Sample code : 30

Location	Type of Sample
Umangalam soil sample Lat: 11.538174, Lon:79.438704	Soil

S. No	Test Parameters	Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (mg/kg)	Environmental Impact Assessment Report, 2018	TNPCB Committee Result
1.	pH at 25°C	-	7.24	3.01
2.	Conductivity at 25°C	-	326	1598
3.	Moisture	-	12.34	6.63
4.	Zinc as Zn	250	12.5	2.79
5.	Cadmium as Cd	1.4	0.449	< 0.5
6.	Nickel as Ni	45	NA	0.54
7.	Lead as Pb	70	NA	1.78
8.	Arsenic as As	12	NA	<0.5
9.	Chromium as Cr	64	0.422	0.77
10.	Mercury as Hg	6.6	NA	<0.04
11.	Selenium as Se	1.0	NA	<0.5
12.	Boron as B	-	1.81	<0.5
13.	Calcium as Ca	-	141	179.4
14.	Magnesium as Mg	-	44	39.49
15.	Manganese as Mn	-	5.94	24.44
16.	Aluminium as Al	-	NA	221.8
17.	Iron as Fe	-	218	185.1
18.	Potassium as K	-	353	21.76
19.	Sodium as Na	-	NA	2.98
20.	Chlorides as Cl	-	NA	238
21.	Total Soluble Sulphate as SO ₄	-	NA	0.35
22.	Total Hardness as CaCO ₃	-	NA	2391
23.	Sulphide	-	NA	<1.0
24.	Total Alkalinity as CaCO ₃	-	NA	<1.0

NA- Not Analyzed

Inference

The report of analysis of committee reveals that there is no much variation in the above tested parameters when compared with baseline data. **Also, both the TNPCB Committee Result and baseline data are within the standard limit of Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health**



Date of collection: 29.08.2023 at 4.29 pm

Sample code : 31

Location	Type of Sample
Mudhanai soil sample Lat: 11.572008, Lon: 79.404484	Soil

S. No	Test Parameters	Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (mg/kg)	Environmental Impact Assessment Report, 2018	TNPCB Committee Result
1.	pH at 25°C	-	7.67	7.15
2.	Conductivity at 25°C	-	528	161.5
3.	Moisture	-	21.7	7.6
4.	Zinc as Zn	250	11.11	32.04
5.	Cadmium as Cd	1.4	0.634	< 0.5
6.	Nickel as Ni	45	NA	6.74
7.	Lead as Pb	70	NA	16.21
8.	Arsenic as As	12	NA	<0.5
9.	Chromium as Cr	64	0.696	3.37
10.	Mercury as Hg	6.6	NA	<0.04
11.	Selenium as Se	1.0	NA	<0.5
12.	Boron as B	-	1.45	<0.5
13.	Calcium as Ca	-	135	3423
14.	Magnesium as Mg	-	112	663.7
15.	Manganese as Mn	-	6.43	216.7
16.	Aluminium as Al	-	NA	2045
17.	Iron as Fe	-	256	1583
18.	Potassium as K	-	284	130.3
19.	Sodium as Na	-	NA	200.7
20.	Chlorides as Cl	-	NA	138.5
21.	Total Soluble Sulphate as SO ₄	-	NA	0.19
22.	Total Hardness as CaCO ₃	-	NA	27360
23.	Sulphide	-	NA	<1.0
24.	Total Alkalinity as CaCO ₃	-	NA	260

NA- Not Analyzed

Inference

The report of analysis of committee reveals that there is no much variation in the above tested parameters when compared with baseline data. **Also, both the TNPCB Committee Result and baseline data are within the standard limit of Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health**



Date of collection: 29.08.2023 at 1.35 pm

Sample code : 37

Location	Type of Sample
Ash Pond- Ash sample Lat:11.558337,Lon: 79.462478	Ash sample

S. No	Test Parameters	Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (mg/kg)	TNPCB Committee Result
1.	pH at 25°C	-	5.45
2.	Conductivity at 25°C	-	24.6
3.	Moisture	-	3.23
4.	Zinc as Zn	250	24.41
5.	Cadmium as Cd	1.4	<0.5
6.	Nickel as Ni	45	5.09
7.	Lead as Pb	70	2.86
8.	Arsenic as As	12	<0.5
9.	Chromium as Cr	64	2.83
10.	Mercury as Hg	6.6	<0.04
11.	Selenium as Se	1.0	<0.5
12.	Boron as B	-	<0.5
13.	Calcium as Ca	-	2040
14.	Magnesium as Mg	-	306.5
15.	Manganese as Mn	-	22.22
16.	Aluminium as Al	-	2481
17.	Iron as Fe	-	14267
18.	Potassium as K	-	12.13
19.	Sodium as Na	-	125.9
20.	Chlorides as Cl	-	78.6
21.	Total Soluble Sulphate as SO ₄	-	0.15
22.	Total Hardness as CaCO ₃	-	58622
23.	Sulphide	-	<1.0
24.	Total Alkalinity as CaCO ₃	-	179

Inference

The report of analysis of committee reveals that there is no heavy metal contamination observed in the ash sample. ***Also, all the heavy metals are within the standard limit of Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health***



19.0 PHOTOGRAPHS

**STATUS OF AFFORESTATION IN RECLAIMED AREA OF MINE I, M/S. NLC INDIA LTD.,
(as on Aug 2023) – PLATE – 1**

Mine Project area (Hectares)	Area mined out since inception till 2023 (Hectares)	Area Reclaimed since inception till 2023 (Hectares)	Total afforestation developed in Hectares	No. of Trees in approx.
3635.4	2484.6	1240.6	1100.15	1200000

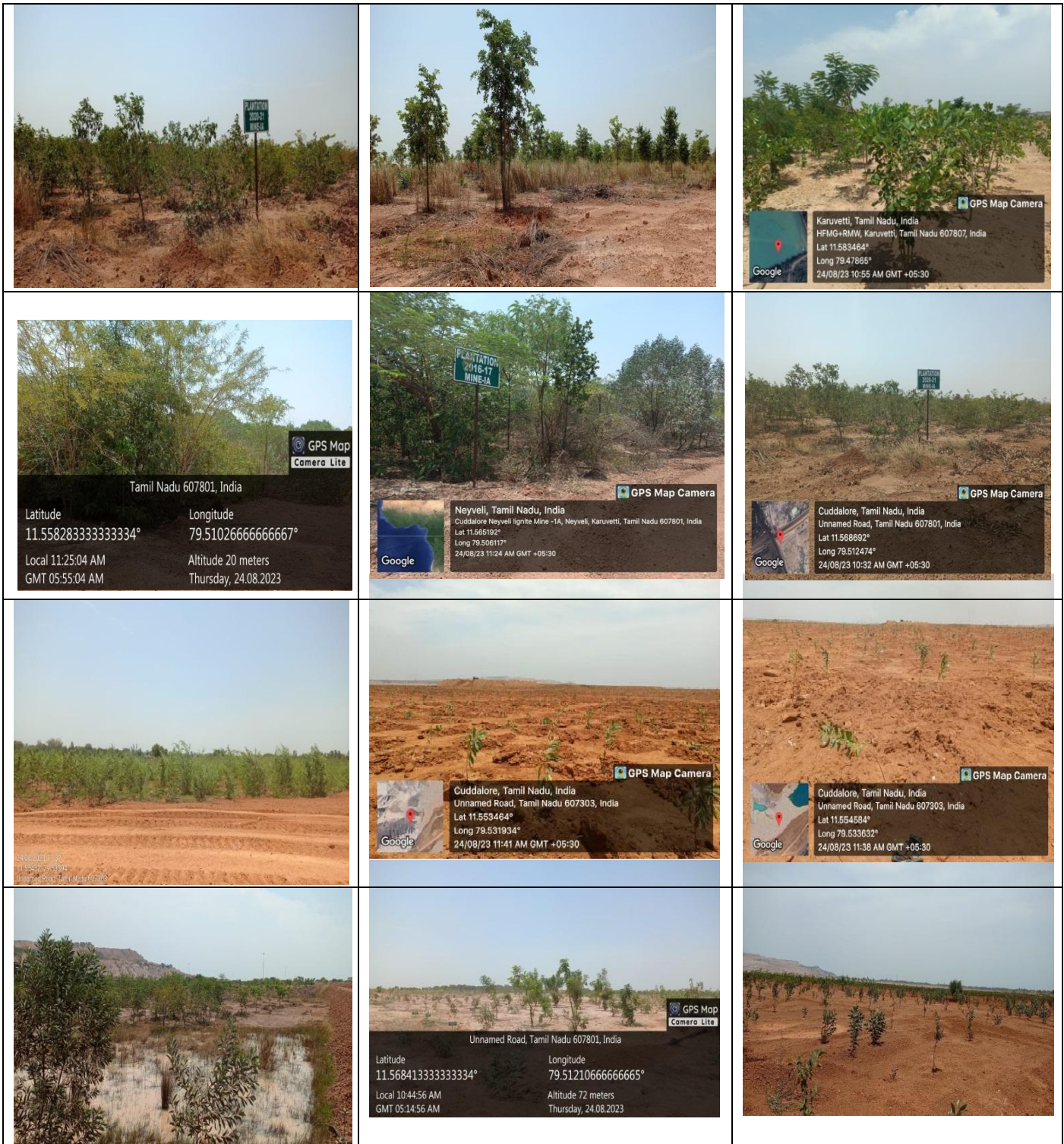


Inference:

The afforestation in the reclaimed area of Mine I, NLC INDIA LIMITED has been well established, with the plants growing as a dense forest. The remaining accessible land could be used for further plantations.

STATUS OF AFFORESTATION IN RECLAIM7E9D AREA OF MINE IA, M/S. NLC INDIA LTD., (As on Aug 2023) – PLATE – 2

Mine Project area (Hectares)	Area mined out since inception till 2023 (Hectares)	Area Reclaimed since inception till 2023 (Hectares)	Total afforestation developed in Hectares	No. of Trees in approx.
2005.8	778.1	360.69	298.78	135000



Inference:

Out of the 370 ha of total reclaimed area, 298 ha were planted with trees as part of the afforestation project. So, until sufficient development is achieved, plantations need to be improved along with adequate care. The unit may enhance and expand the green belt area for the benefit of the environment because there are surplus water and topsoil sources accessible for greater green belt development.

STATUS OF AFFORESTATION IN RECLAIM8E0D AREA OF MINE - II, M/S. NLC INDIA LTD., (As on Aug 2023) – PLATE – 3

Mine Project area (Hectares)	Area mined out since inception till 2023 (Hectares)	Area Reclaimed since inception till 2023 (Hectares)	Total Greenbelt Developed in Hectares	No. of Trees in approx.
7193.975	2544.71	1171.9	896.7	1200000

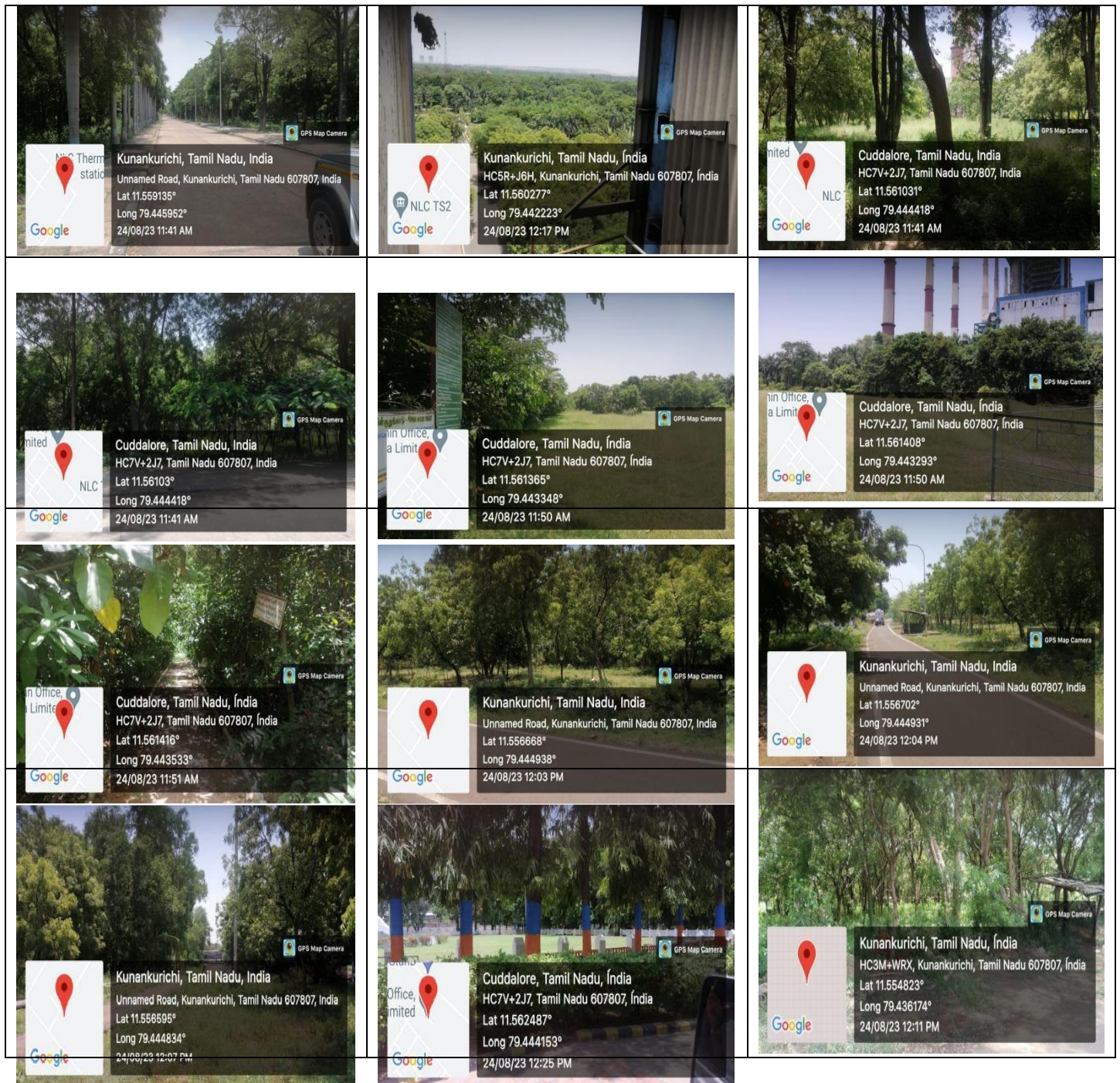


Inference:

Out of the 1171 ha of total reclaimed area, 896 ha were planted with trees as part of the afforestation project. So, until sufficient development is achieved, plantations need to be improved along with adequate care. It is observed that an invasive plant species named *Acacia Auriculiformis* has spread over one third of reclaimed area of Mine II, NLC IL. It is an invasive species, native of Australia. This plant is harmful for the soil health through reduction of soil moisture, soil fertility, atmospheric moisture and undergrowth. It forms as monoculture eventually affects the Native Biodiversity of the area. This fast growing invasive plant displaces native vegetation and can shade out rare plants. Hence, the Mine II unit may take initiative to eradicate this invasive vegetation including *Acacia nilotica* and replanting with natural wild & fruit bearing species can be proceeded at the earliest so it can help to attract more birds.

**STATUS OF GREEN BELT DEVELOPMENT OF TPS - II, M/S. NLC INDIA LTD.,
(As on Aug 2023) – PLATE – 4**

As per EC Area Allotted (Hectares)	Actual Area acquired (Hectares)	Greenbelt Developed inside the unit
210	210	70,000

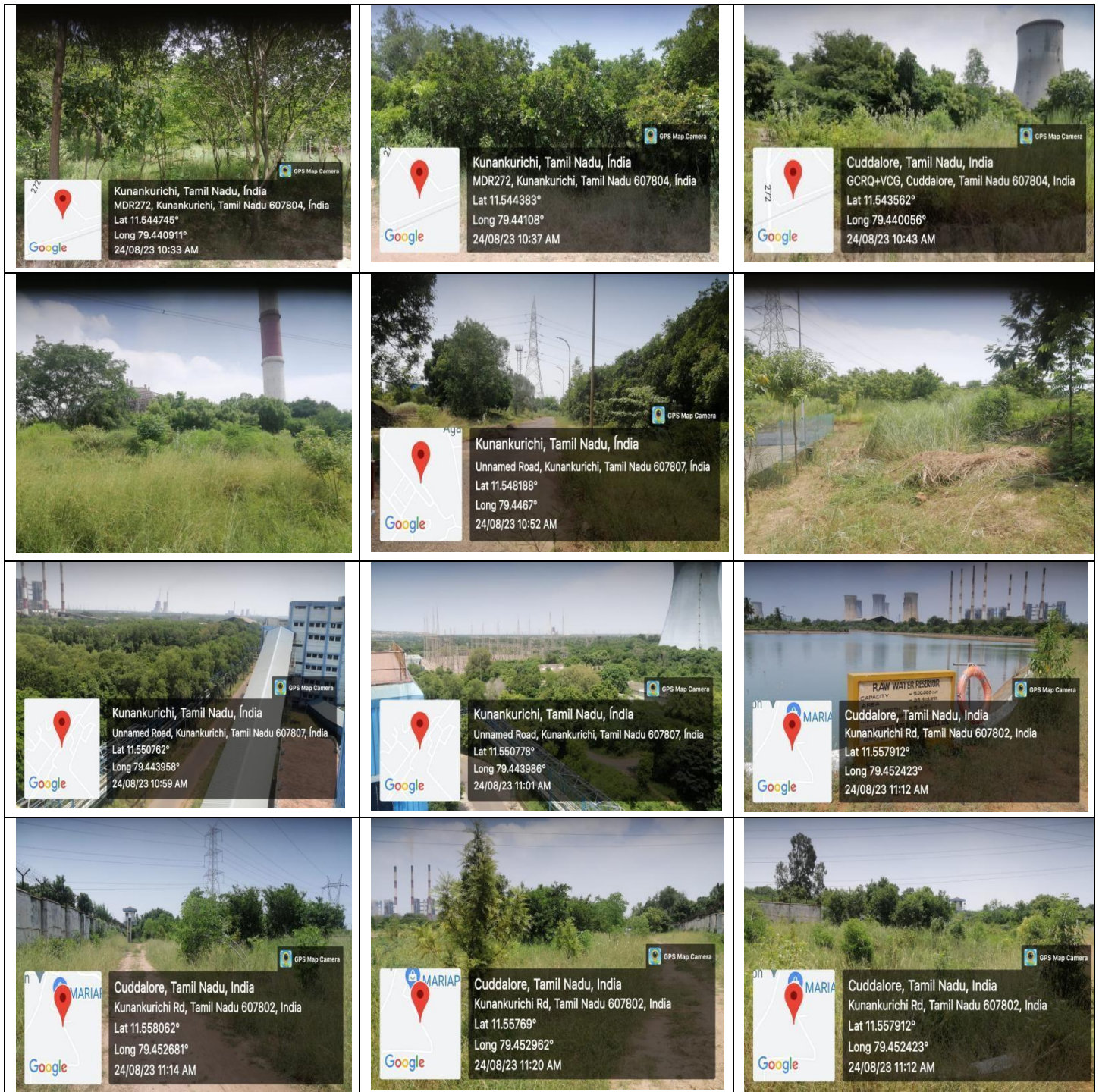


Inference:

Out of the 210 ha of total acquired area, approximately 140 ha area is utilized for power generation process, buildings and road transport etc. So, 70 ha of huge land area is available for green belt development. In which, green belt developmental progress has been done with approximately 70,000 trees and plants. This unit may enhance and expand the green belt because there are plenty of water, topsoil sources and land area available for green belt coverage.

**STATUS OF GREEN BELT DEVELOPMENT OF TPS – II EXPANSION, M/S. NLC INDIA LTD.,
(As on Aug 2023) – PLATE – 5**

As per EC Area Allotted (Hectares)	Actual Area acquired (Hectares)	Green belt Developed inside the unit
147	147	40,000

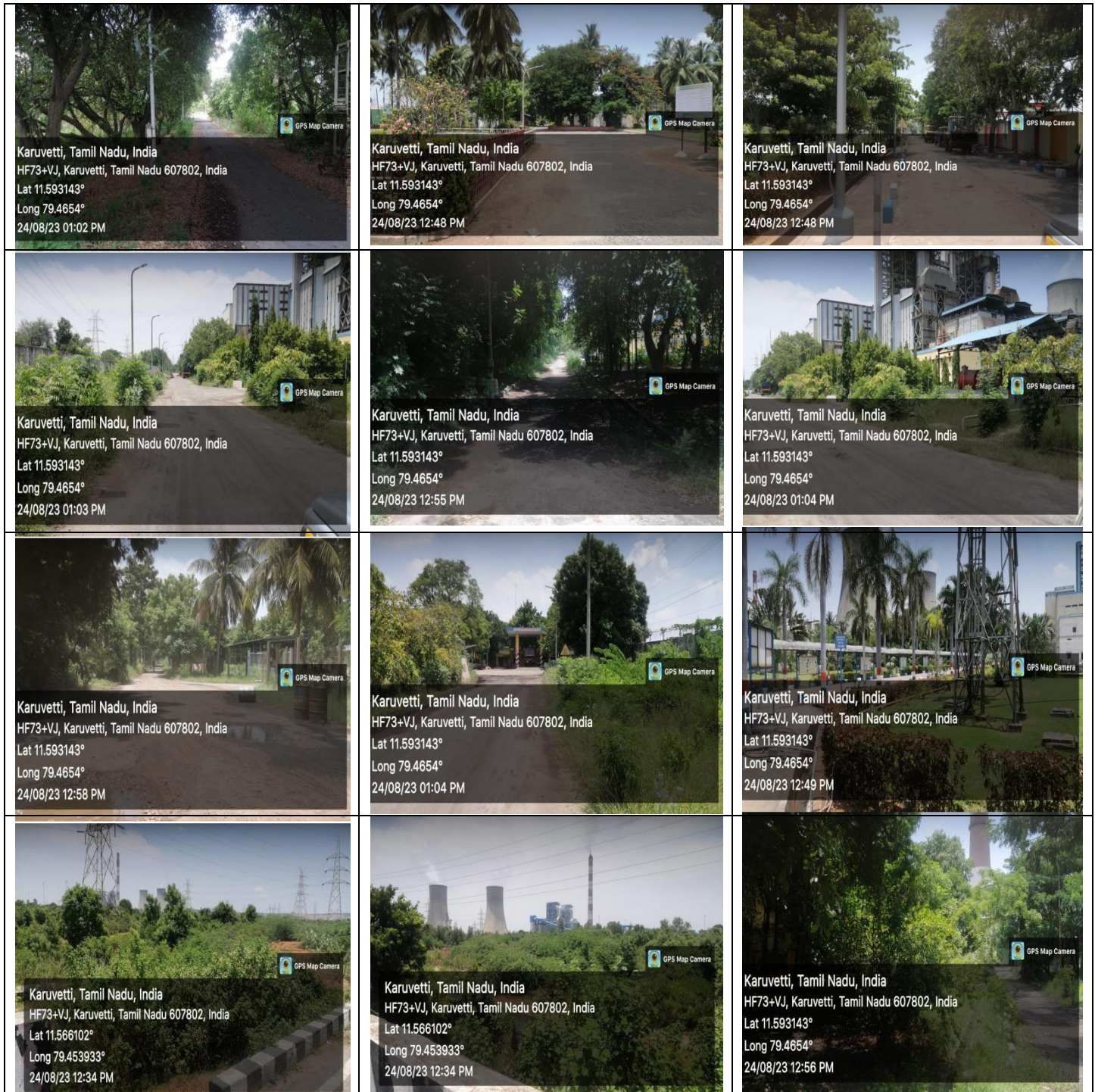


Inference:

Out of the 147 ha of total acquired area, approximately 117 ha area is utilized for power generation process, Lake, buildings and road transport etc. So, nearly 30 ha of actual land is available for green belt development. In which, green belt developmental progress has been done with approximately 40,000 trees and plants. In this location, more plantation cover need to be improved along with adequate care until sufficient plant growth is achieved for better green mass covering .

**STATUS OF GREEN BELT DEVELOPMENT OF TPS – I EXPANSION, M/S. NLC INDIA LTD.,
(As on Aug 2023) – PLATE – 6**

As per EC Area Allotted (Hectares)	Actual Area acquired (Hectares)	Green belt Developed inside the unit
40	40	2000

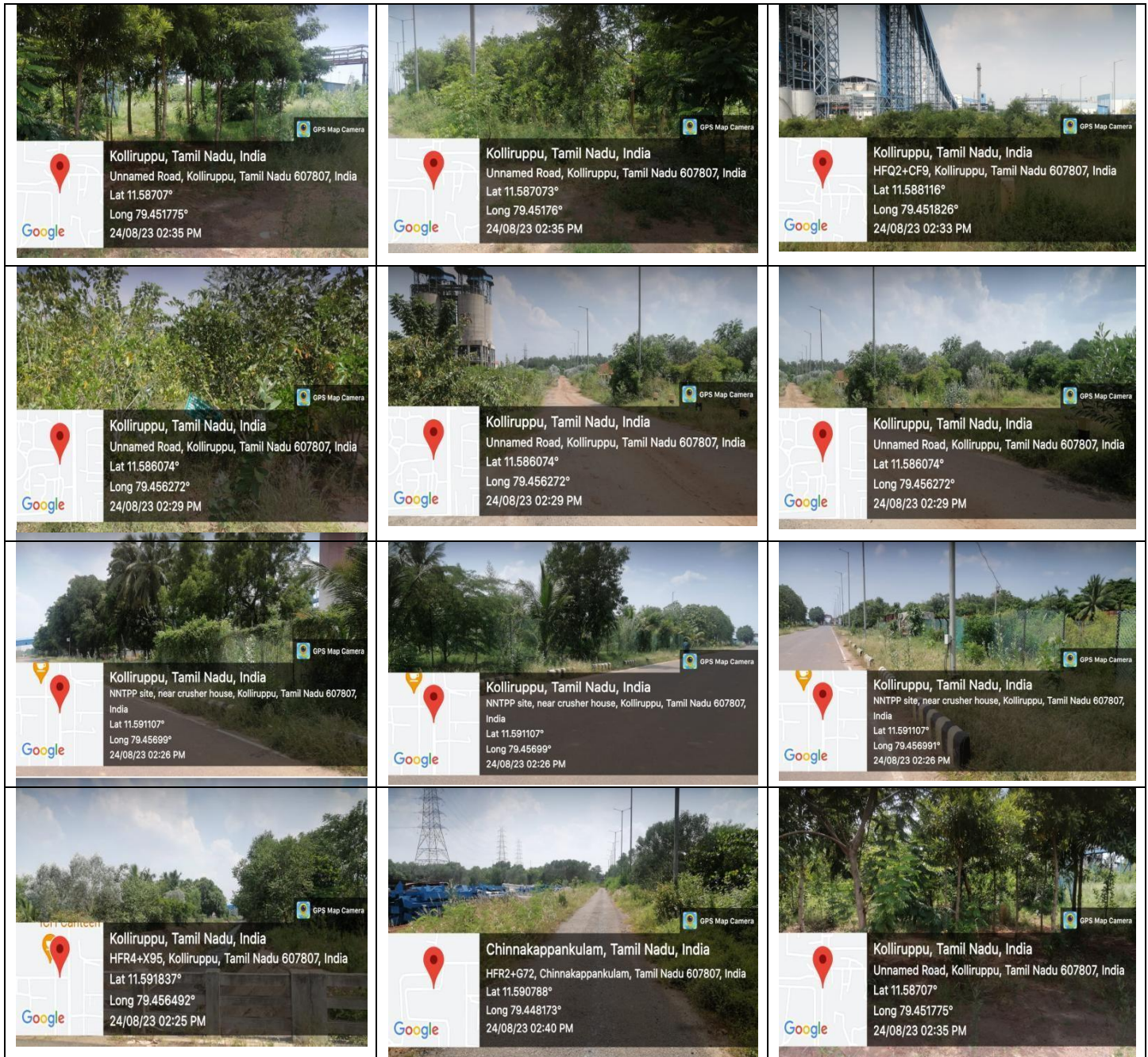


Inference:

Out of the 40 ha of total acquired area, approximately 35 ha area is utilized for power generation process, buildings and road transport etc. So, only 5 ha of actual land is available for green belt development. In which, greenbelt developmental progress has been done with approximately 2,000 plants. In this location, plantations need to be improved along with adequate care until sufficient development is achieved for better green mass.

**STATUS OF GREEN BELT DEVELOPMENT OF NNTPS, M/S. NLC INDIA LTD.,
(As on Aug 2023) – PLATE – 7**

As per EC Area Allotted (Hectares)	Actual Area acquired (Hectares)	Green belt Developed inside the unit
210	160	35,000



Inference:

Out of the 160 ha of total acquired area, approximately 100 ha area is utilized for power generation process, buildings and road transport etc. So, approximately 60 ha of actual land is available for green belt development. In which, greenbelt developmental progress has been done with approximately 35,000 trees and plants. The unit may improve and expand the green belt area for the benefit of the environment because there are surplus water, topsoil sources and land area available for green belt development.

SAMPLES COLLECTED BY THE TNPCB'S COMMITTEE VISIT - PLATE - 8



Ground water Sample collected on 16.08.2023 @ Tholkappier Nagar nearer to M/s. NLC Limited



Surface water Sample collected on 16.08.2023 @ Iyyan Lake nearer to M/s. NLC Limited



Surface water Sample collected on 11.08.2023 @ River Paravanar nearer to M/s. NLC Limited.



Surface water Sample collected on 16.08.2023 @ River Paravanar nearer to M/s. NLC Limited Mine IA.



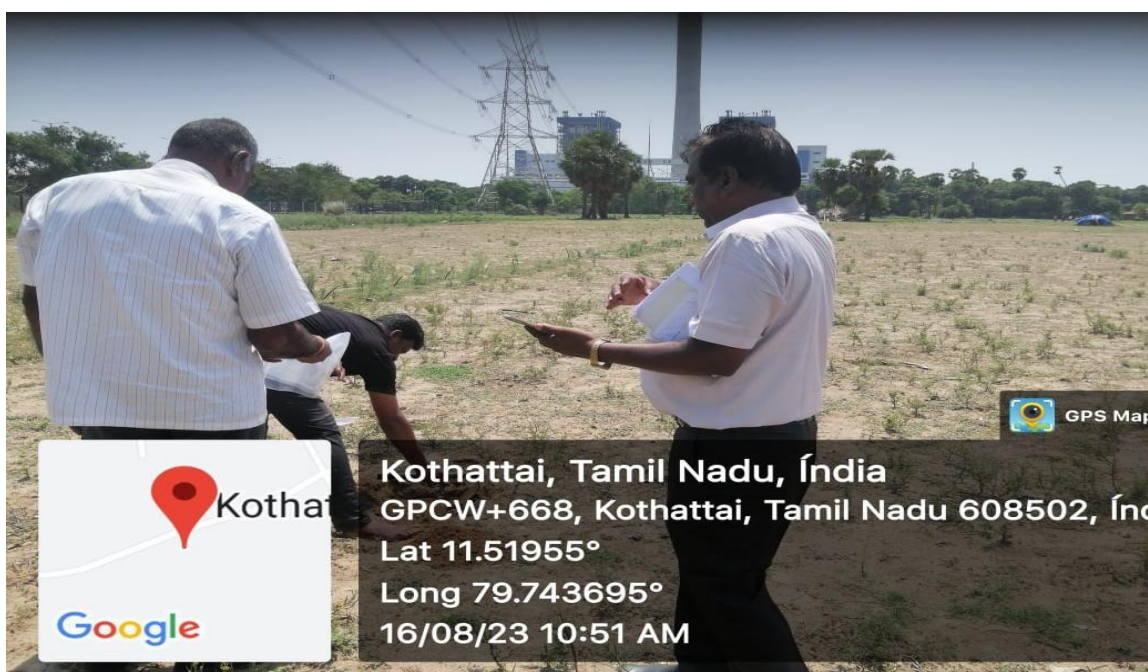
Soil sample collected on 11.08.2023 @ vadakkuvellur bypass nearer to M/s. NLC India Limited.



Soil sample collected on 11.08.2023 @ agricultural land nearer to Iyan lake nearer to M/s. NLC India Limited.

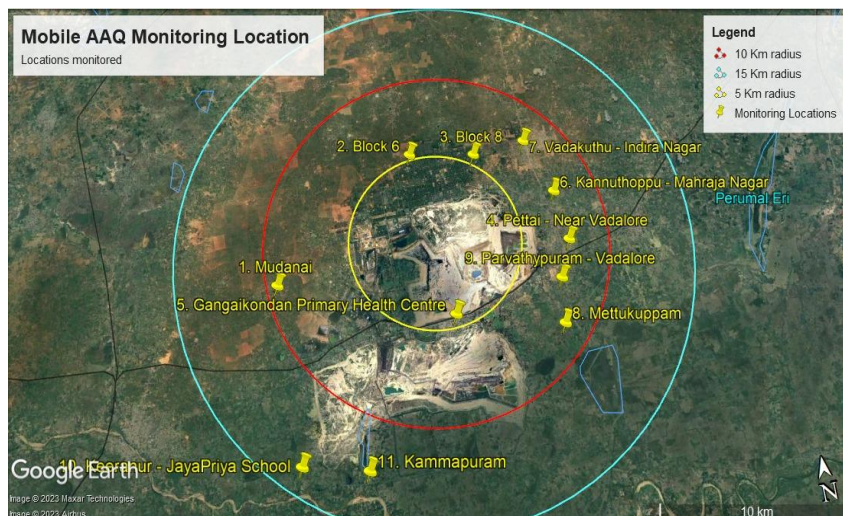


Water sample collected on 16.08.2023 @ Karrikuppam Village Fish pond nearer to M/s. IL& FS Tamilnadu Power Company Limited.



Soil sample collected on 16.08.2023 @ Karrikuppam nearer to M/s. IL& FS Tamilnadu Power Company Limited.

PLATE 9: AMBIENT AIR QUALITY SURVEY CONDUCTED THROUGH CONTINUOUS AMBIENT AIR QUALITY MONITORING VEHICLE (CAAQMS)



Location of continuous Ambient Air Quality Survey conducted



PLATE 10: RECOMMENDED TO TAKE NECESSARY ACTION FOR SEGREGATION, TREATMENT AND DISPOSED THE SOLID WASTE



PLATE 11: RECOMMENDED TO TAKE NECESSARY ACTION TO KEEP PLASTIC FREE ZONE



**PLATE 12: RECOMMENDED TO TAKE NECESSARY ACTION FOR REMOVAL
OF INVASIVE SPECIES LIKE PROSOPIS JULIFLORA,
ACACIA AURICULIFORMIS**



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

Original Application No.107 of 2023 (SZ)

Suo Motu based on the news item published
In The New Indian Express, dt. 09.08.2023,
under the caption "Huge pollution risk in 8 Km
around NLC" and in The Times of India,
Chennai Edition dt. 09.08.2023 under the
caption "Water near NLC full of Mercury".

Vs.

The Managing Director,
NLC India Limited,
Chennai and Ors.

...Respondents

**Report of the TNPCB Committee as per orders
of the Hon'ble National Green Tribunal
(Southern Zone) in O.A.No.107 of 2023(SZ)**

**Advocate for Respondent: TNPCB
Thiru. Sai Sathyajith
Advocate, Chennai.**

Date:29.11.2023