BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

Principal Bench, New Delhi

O.A No. 247 of 2024

News item titled "Ahmedabad Surat landfills among worst three methane hotspots in India" appearing in the times of India dated 07.02.2024.

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2.	**Annexure-I** A copy of Hon'ble NGT order dated 19.03.2024, in O.A. No. 247/2024, titled as News Item tiled "Ahmedabad Surat landfills among worst three methane hotspots in India "appearing in The Times of India dated 07.02.2024.	
3.	**Annexure-II** A copy of letter dated 18.04.2024 issued by CPCB to Assam, Gujarat, Maharashtra, Rajasthan SPCBs, ISRO and MoEF & CC for nominations.	
4.	**Annexure-III** A copy of Minutes of the first Meeting dated 10.06.2024.	
5.	**Annexure-IV** A copy of Minutes of the second Meeting dated 25.06.2024.	
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12.	**Annexure-XI** A copy of Hon'ble NGT order dated 05.07.2024.	

Divya Sinha
Scientist 'F'
Central Pollution Control Board
East Arjun Nagar

Place: Delhi
Dated: 13.08.2024

JOINT COMMITTEE REPORT

(IN COMPLIANCE TO HON'BLE NGT ORDER DATED 19.03.2024 IN THE MATTER OF NEWS ITEM TITLED "AHMEDABAD SURAT LANDFILLS AMONG WORST THREE METHANE HOTSPOTS IN INDIA" APPEARING IN THE TIMES OF INDIA DATED 07.02.2024)

CENTRAL POLLUTION CONTROL BOARD
(*Ministry of Environment, Forest & Climate Change*)
"Parivesh Bhawan", East Arjun Nagar,
Delhi-110032

August, 2024

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JOINT COMMITTEE REPORT SUBMITTED IN COMPLIANCE TO HON'BLE NGT ORDER DATED 19.03.2024 IN THE MATTER OF NEWS ITEM TITLED "AHMEDABAD SURAT LANDFILLS AMONG WORST THREE METHANE HOTSPOTS IN INDIA" APPEARING IN THE TIMES OF INDIA DATED 07.02.2024)

1.0. BACKGROUND

Hon'ble NGT vide order dated 19.3.2024 in O.A No. 247/2024, News item titled "Ahmedabad Surat landfills among worst three methane hotspots in India" appearing in the Times of India dated 07.02.2024 directed in para 5,6 and 7 are reproduced below:

- ***Para 5*** *"for the purpose of submitting factual report we constitute a Joint Committee comprising a Senior Officer to be nominated by Member Secretary, Central Pollution Control Board (hereinafter referred to as CPCB,) concerned Regional Officers of respective State Pollution Control Boards, a representative of ISRO to be nominated by Director and a Senior Scientist nominated by Ministry of Environment, Forest and Climate Change (hereinafter referred to as MoEF&CC) "*
- ***Para 6*** *"CPCB shall be the nodal for coordination and compliance."*
- ***Para 7*** *"The said committee shall collect relevant factual information : if necessary , visit the sites and submit factual report particularly relating to compliance of such sites with Schedule I of Solid Waste Management Rules, 2016 (herein after referred to as MSW Rules , 2016) and remedial measures taken on Para (F) of the said Schedule within three months by email at judicial–ngt@gov.in preferably in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF.*
- *The report should also give status of Authorisation granted by State Pollution Control Board, accumulation of waste in quantified terms on sites in question and ambient air quality monitoring data around these sites as per MSW Rules, 2016. the Committee may also indicate mitigation measures taken for reduction in organic emissions, including methane from ONGC sites separating them from landfill sites as the case may be."*

A copy of Hon'ble NGT order is attached as **Annexure I**

2.0. FOLLOW UP ACTION INITIATED BY CPCB

In compliance to the said order, nominations were invited by Central Pollution Control Board (CPCB) from committee member's organizations vide letter dated 18.04.2024 **(Annexure II)**. The Joint committee was constituted as per response received from the concerned organization. The details given below:

1	Mrs Divya Sinha , Director & Divisional Head , UPC-II
2	Sh Amit Love , Scientist 'E' MoEF&CC
3	Dr Raghvendra Pratap Singh , Director, Indian Institute of Remote Sensing (IIRS) , ISRO, Dehradun
4	Sh Sujit Dholam , Regional Officer (HQ) , Maharashtra
5	Sh. Jagdish Choudhary, Regional Officer , Jaisalmer, Rajasthan
6	Sh. Rajkumar Sehra, Regional Officer, Balotra , Rajasthan
7	Sh. Deepak Dhanetwal,Regional Officer , Jhunjhunu , Rajasthan
8	Dr. Jignasa Oza , Regional Officer Surat, Gujarat
9	Dr Talika Patel , Regional Officer, Ahmedabad , Gujarat
10	Sh Hiren Pegu , Executive Engineer and Regional Officer , Tinsukia , Assam
11	Sh Jayanta Kumar Das, Regional Executive Engineer, Sivasagar , Assam

3.0. MEETINGS OF THE JOINT COMMITTEE

The meeting of committee members was convened on 03.06.2024 through Video Conferencing (VC) to discuss the further line of action in the said matter. Copy of the Minutes of Meeting is enclosed **(Annexure III)**. Three formats were sent to the concerned SPCBs/PCCs to provide the relevant information including. (i) City wise details: information of dumpsites and sanitary landfills in the city. (ii) Details of the legacy waste dumpsites (iii) Details of sanitary landfills

Second meeting of the committee was held on 18.06.2024. As per the deliberations, additional format was circulated to the concerned SPCBs/PCC to provide relevant information w.r.t Oil & Gas establishments in cities indicated in IIRS, Report. Copy of the Minutes of Meeting is enclosed **(Annexure IV).** Third meeting of the committee was held on 02.07.2024 and minutes of the meeting is enclosed as **(Annexure V)**

4.0. LITERATURE REVIEW

Literature survey was conducted to review information with respect to methane emissions from dumpsites available in the various studies/publications on the subject. CPCB has published a document on "Status of Methane Emission from Municipal Solid Waste Disposal Sites " in April 2006. Indian Institute of Remote sensing (IIRS), ISRO, Dehradun has conducted a study and a research paper on "Detecting Methane Emissions from Space over India: analysis using EMIT and Sentinel-5P TROPOMI datasets" has been published. The aforementioned documents were reviewed. Further, international practices and regulations for mitigation of methane arising was also reviewed. The details are placed at **Annexure VI**

5.0 COMPILATION & ANALYSIS OF INFORMATION:

The concerned SPCBs/PCCs were requested to provide information related to Solid Waste processing facilities as well as Oil & Gas establishments in four States covering 12 cities viz Assam (Nazira, Dibrugarh & Tinsukia) , Gujarat (Ahmedabad and Surat) , Maharashtra (Central Mumbai , Pune , Kalyan) and Rajasthan (Barmer, Jaisalmer, Taranagar and Chirawa) Formats in which the information was to be provided is placed at **Annexure-VII.** It is to be noted that the SPCBs/PCCs were requested to provide the GPS location of the aforementioned facilities to CPCB
The city wise information is attached as **Annexure-VIII.**

The GPS location of the hotspots of methane generation in the IIRS report was compared with the GPS location of the SWM / O&G facilities in the particular cities provided by the SPCBs/PCCs. SWM Facilities / O&G facilities close to the hotspots as per the IIRS report could be identified based on the assessment. 13 such sites (except one site at Nazira) could be identified whose GPS coordinates were close to the hotspots as per the IIRS report. The same have been highlighted in Table **5.1**. The GPS locations of Nazira was visited by Regional Office , Assam SPCB at Nazira and it was informed that ,there are 8 nos of ONGCL installations such as Gelekey GGS-2, Gelekey CTF, Gelekey ETP (old), Gelekey WIP(old) , Gelekey New ETP-WIP, Gelekey CPP, Gelekey GCP-1 & Gelekey GCP-2 and 3.The technical flaring of natural gas generated from GGS-2 and GCPs is being flared in the ground flare pit, enclosed by asbestos sheets which is approx 250-300 meters (aerial distance) from the installations and has shown the same GPS coordinates as mentioned by ISRO

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Table 5.1 : Sources of methane emission nearest to the location provided by IIRS, ISRO

State	City	Primary Emission Sources	Other Emission sources	Average methane emission (kg/hr)	Coordinates	Dumpsites/SLFs/O&G Sites	Coordinates	Corresponding closest sites	Remarks
Gujarat	Surat	SW Landfill Site Khajod	STP Khajod	4705	21.11 72.81	Khajod Dumpsite	21.100 72.803	Khajod Dumpsite	Coordinates of Khajod Dumpsite is matching to ISRO identified site .
						Bhatar Dumpsite	21.159 72.819		
						Khajod SLF	21.100 72.803		
	Ahmedabad	SW-Pirana Landfill Site	TI-Chiripal Textile mill Ltd	4727	22.98 72.57	Pirana Dumpsite	22.976 72.563	Pirana Dumpsite	Coordinates of Pirana Dumpsite is matching with ISRO data
						Gyaspur SLF	22.960 72.546		

State	City	Primary Emission Sources	Other Emission sources	Average methane emission (kg/hr)	Coordinates	Dumpsites/SLFs/O&G Sites	Coordinates	Corresponding closest sites	Remarks
Maharashtra	Central Mumbai	SO		6202	19.12 72.95	Deonar Dumpsite	19.126 72.946	Deonar Dumpsite	As reported by MPCB RO, dumpsite at Deonar and SLF at Kanjurmarg are located in Central Mumbai. Further the GPS location are also nearby.
						Kanjurmarg SLF	19.122 72.947	Kanjurmarg SLF	

State	City	Primary Emission Sources	Other Emission sources	Average methane emission (kg/hr)	Coordinates	Dumpsites/SLFs/O&G Sites	Coordinates	Corresponding closest sites	Remarks
						Mulund Dumpsite	19.171 72.973		
	Thane	Kanjur SW BMC Dumping	SW Deonar Dumping	Not given	19.12 72.95				

State	City	Primary Emission Sources	Other Emission sources	Average methane emission (kg/hr)	Coordinates	Dumpsites/SLFs/O&G Sites	Coordinates	Corresponding closest sites	Remarks
	Kalyan Dombivli	SW Dumping site (KDMC Dump-1)		889	19.25 73.12	Aadharwadi Dumpsite	19.265 73.104	Aadharwadi Dumpsite	As reported by MPCB RO, Kalyan Dombivli is one Municipal corporation, but as per IIRS ISRO kalyan and Dombivli have separate sites. Hence Aadharwadi dumpsite is considered as emission source.
		SW Dumping site (KDMC Dump-2)	WT	820	19.28 73.12				Do
		SW Landfill Site		750	19.18 73.04	Umbarade SLF	19.278 73.12		Not identified by ISRO
						Barave SLF	19.264 73.147		

State	City	Primary Emission Sources	Other Emission sources	Average methane emission (kg/hr)	Coordinates	Dumpsites/SLFs/O&G Sites	Coordinates	Corresponding closest sites	Remarks
	Pune	SW Landfill site, Adarsha nagar, Pimpri-chinchwad		1333	18.66 73.86	Pimpri-Chinchwad SLF	18.658 73.853	Pimpri-Chinchwad	Coordinates are nearby
						Urali Devachi Dumpsite	18.470 73.952		
						Urali Devachi SLF	18.470 73.952		
Rajasthan	Chirawa	SW Dumping Chirawa, Jhunjhunu		478	28.26 75.64	Baghniya Johar	28.26, 75.64	Baghniya Johar	Coordinates are nearby
	Taranagar	SW Bhootiya Taranagar		589	28.65 75.07	Alagla Road, Bhootiya	28.6656, 75.0247	Alagla Road, Bhootiya	Coordinates are nearby
	Jaisalmer	O&G-GGS-Jaisalmer		931	27.14 69.75	Focus energy Ltd. SGL gas field, Jaisalmer	27.141, 69.759	Focus energy Ltd. SGL gas field, jaisalmer	Coordinates are nearby

State	City	Primary Emission Sources	Other Emission sources	Average methane emission (kg/hr)	Coordinates	Dumpsites/SLFs/O&G Sites	Coordinates	Corresponding closest sites	Remarks
	Barmer	O&G-ABH facility, Banda Talwar		1475	25.9 71.57	Vedanta Ltd. Cairn oil & gas ABH facility	25.90, 71.572	Vedanta Ltd. Cairn oil & gas ABH facility	Coordinates are nearby
Assam	Nazira	O&G ONGC Refinery		561	26.8 94.69	ONGC, ASSAM Asset, Nazira, Assam	26.916 94.740	ONGC, ASSAM Asset, Nazira, Assam	RO Assam, SPCB visited on July 03, 2024 & ascertained that at the location identified by IIRS, ISRO, there is ONGCL site exists with 8 no. of installations.
	Dibrugarh	O&G Kathalguri-OCS		521	27.34 95.48	Kathalguri OCS Duliajan	27.368 95.446	Kathalguri OCS Duliajan	Coordinates are not much apart. However this is the only Oil India Limited site in Dibrugarh
	Tinsukia	Jorojan-GCS			27.34 95.48	Jorajan OCS, Digboi	27.341 95.483	Jorajan OCS, Digboi (Oil India Ltd.)	Coordinates are nearby

6.0 Detailed analysis of identified sites

These sites identified in Section 5 were taken up for detailed assessment in compliance with NGT Directions. The details are given table

Table 6.1: Dumpsites

IIRS, ISRO Site					Data provided by SPCB ROs									
State	**S.No.**	**City**	**Place of Dumpsites**	**IIRS ISRO, Average methane Emission kg/hr**	**Location of Site (Lat., Long.)**	**Biomining Status (Not initiated/Commenced/ Completed)**	**Age (Years) & Avg. height (m) of Dump**	**Volume of Waste in the dumpsites**	**No. of fires reported & cause of fire**	**Provision for gas collection System**	**Ambient Air Quality Monitoring**	**Provision for leachate Collection & treatment**	**Provision for Methane Detector (Y/N)**	**Disposal of fresh waste (Y/N)**
Gujarat	1	**Surat**	Khajod	4705	21.1004, 72.563	Capped	20-25 years	35 Lakh Cum	None	Yes, in closed landfill cells (40 gas collection system)	No	yes, Leachate is collected in tankers & treated in Leachate treatm	No, but gas vent provided in scientifically closed area .	No

IIRS, ISRO Site					Data provided by SPCB ROs									
State	**S.No.**	**City**	**Place of Dumpsites**	**IIRS ISRO, Average methane Emission kg/hr**	**Location of Site (Lat., Long.)**	**Biomining Status (Not initiated/Commenced/ Completed)**	**Age (Years) & Avg. height (m) of Dump**	**Volume of Waste in the dumpsites**	**No. of fires reported & cause of fire**	**Provision for gas collection System**	**Ambient Air Quality Monitoring**	**Provision for leachate Collection & treatment**	**Provision for Methane Detector (Y/N)**	**Disposal of fresh waste (Y/N)**
												ent unit		
	2	**Ahmedabad**	Pirana	4727	22.976, 72.563	Completed in Dec. 2023	Biomining completed							

IIRS, ISRO Site					Data provided by SPCB ROs									
State	**S.No.**	**City**	**Place of Dumpsites**	**IIRS ISRO, Average methane Emission kg/hr**	**Location of Site (Lat., Long.)**	**Biomining Status (Not initiated/Commenced/ Completed)**	**Age (Years) & Avg. height (m) of Dump**	**Volume of Waste in the dumpsites**	**No. of fires reported & cause of fire**	**Provision for gas collection System**	**Ambient Air Quality Monitoring**	**Provision for leachate Collection & treatment**	**Provision for Methane Detector (Y/N)**	**Disposal of fresh waste (Y/N)**
Maharashtra	3	**Greater Mumbai**	Deonar	6202	19.05, 72.08	Not initiated	103 Years & 40 m	200 Lakh MT	None	No	Yes	No	No	Yes
	4	**Kalyan Dombivali**	Aadharwadi		19.265, 73.104	Commenced	42 years & 15 m	13.70 Lakh MT	None	No	Yes	No	No	No

IIRS, ISRO Site					Data provided by SPCB ROs									
State	**S.No.**	**City**	**Place of Dumpsites**	**IIRS ISRO, Average methane Emission kg/hr**	**Location of Site (Lat., Long.)**	**Biomining Status (Not initiated/Commenced/ Completed)**	**Age (Years) & Avg. height (m) of Dump**	**Volume of Waste in the dumpsites**	**No. of fires reported & cause of fire**	**Provision for gas collection System**	**Ambient Air Quality Monitoring**	**Provision for leachate Collection & treatment**	**Provision for Methane Detector (Y/N)**	**Disposal of fresh waste (Y/N)**
Rajasthan	5	**Chirawa**	Chirawa	478	28.261, 75.639	Commenced	39 years & 3.3-6.1 m	0.81118 Cum (0.68951 Lakh MT)	7 small fires due to flammable material	No	No	No	No	Yes
	6	**Taranagar**	Taranagar	589	28.665, 75.025	Not initiated	20 years & 6 m	0.12045 Lakh Cum (0.10630 LakhMT)	None	No	No	No	No	Yes

Table 6.2: Sanitary Landfill Sites (SLFs)

State	S.No.	City	Sanitary Landfill	IIRS ISRO, Average methane Emission kg/hr	Location of Site (Lat., Long.)	Operation year of SLF (Prior to 2016/After 2016)	Quantity of disposed at Sanitary Landfill	Authorization under SWM Rules, 2016/CTO & its validity	Provision for gas collection System	Ambient air quality Monitoring	No. of fire & reason	Provision for leachate Collection & treatment
Maharashtra	1	**Greater Mumbai**	Kanjurmarg	**Not given**	19.12, 72.9	After 2016	2.03 Lakh MT	Authorization obtained (valid till Oct. 2026)	Yes	Yes	No	Yes
	2	**Pune**	Pimpri-Chinchwad	1333	18.66, 73.85	Prior to 2016	23 Lakh Cum	Authorization obtained (valid till Dec.2024)	No	Yes	Yes	Yes

Table 6.3: Oil & Gas Sites

State	S.No.	City	O&G Site Name	IIRS ISRO, Average methane Emission kg/hr	Location of Site (Lat., Long.)	CTE/CTO Status	Methane Gas Generated(SCMD)	Conversion to production	Disposed to environment	Provision for Methane detector	No. of fire incidents during last 5 years	Ambient air quality monitoring
Assam	1	**Tinsukia**	Jorajan OCS Digboi, GGS	521	27.341, 95.484	Yes, Valid till 2027	181958	98.88%	Flaring: 1.12%Other: Nil	Yes	No	Yes (Parameters $PM_{2.5}$, PM_{10}, SO_2 & NO_x are within prescribed limit as per NAAQS
	2	**Dibrugarh**	Kathalguri OCS Duliajan, GCS		27.368, 95.446	Yes, Valid till 2027	396050	99.66%	Flaring: 0.34%Other: Nil	Yes	No	Yes (Parameters $PM_{2.5}$, PM_{10}, SO_2 & NO_x are within prescribed limit as per NAAQS

State	S.No.	City	O&G Site Name	IIRS ISRO, Average methane Emission kg/hr	Location of Site (Lat., Long.)	CTE/CTO Status	Methane Gas Generated(SCMD)	Conversion to production	Disposed to environment	Provision for Methane detector	No. of fire incidents during last 5 years	Ambient air quality monitoring
	3	**Nazira**	ONGC, Assam Asset. (GGS), Nazira	561	26.91, 94.74	Yes, Valid till 2026	274 MMSCM	92.87%	Flaring: 7.13% Other: Nil	Yes	01, reason not ascertained	Yes (Parameters $PM_{2.5}$, PM_{10}, SO_2 & NO_x are within prescribed limit as per NAAQS
Rajasthan	4	**Jaisalmer**	Focus Energy Limited, SGL gas field, GGS	931	27.141, 69.759	Yes, Valid till 2028	66300	NP	Flaring: Nil Other: Suplied to gas based thermal power plant	Yes	No	Yes (Parameters $PM_{2.5}$, PM_{10}, SO_2 & NO_x are within prescribed limit as per NAAQS

State	S.No.	City	O&G Site Name	IIRS ISRO, Average methane Emission kg/hr	Location of Site (Lat., Long.)	CTE/CTO Status	Methane Gas Generated(SCMD)	Conversion to production	Disposed to environment	Provision for Methane detector	No. of fire incidents during last 5 years	Ambient air quality monitoring
	5	**Barmer**	Vedanta Limited, CAIRN Oil & gas ABH facility, Extraction site	1475	25.90, 71.57	Yes, Valid till 2025	52091	0% (Due to high CO2 content	Flaring: 100%Other: Nil	Yes	No	Yes (Parameters SO_2 & NO_x CO are within prescribed limit as per NAAQS however PM_{10} is exceeding the prescribed limit.

7.0 Assessment of Identified 13 sites as per Hon'ble NGT Directions

The sites mentioned in Table 5.1 were taken up for detailed assessment in compliance with NGT Directions. The details are given in this section:

7.1. Municipal Solid Waste Dumpsites

6 dumpsites could be identified as possible methane emission sources closest to the locations identified by IIRS, ISRO study viz Surat, Ahmedabad, Central Mumbai, Kalyan-Dombivali, Chirawa, & Taranagar. Detailed assessment of these sites is given in **Table 6.1**, Following are the observations:

- Bio mining has been completed at 1 site (Pirana) , under process at 2 sites ((Kalyan –Dombivelli and Chirawa) , has not been initiated at 2 sites (Deonar & Taranagar) and 1 site has been capped (Khajod, Surat) .
- Gas collection systems is installed at only 1 site i.e Khajod , Surat.
- Methane detectors are not installed at any of the dumpsites.
- Ambient air quality is measured at 2 dumpsites namely Aadaharwadi & Deonar in Maharashtra and PM_{10} concentration is exceeding the limit of NAAQS norms at both sites, however, other parameters are within limit **(Annexure IX).**
- Methane emissions have been reported from Khajod (which is capped) and Pirana, Ahemdabad (where biomining has been completed)
- The dumpsite heights range from 3.3 Meters (Chirawa) to 40 Meters (Deonar, Mumbai).
- The age of the dumpsites ranges from 20 years (Taranagar) to 103 years (Deonar, Mumbai).
- Fresh waste disposal is ongoing at 3 dumpsites viz Deonar, Chirawa , Taranagar .
- Leachate collection and treatment system is installed only at Khajod, Surat. A fire incident was reported at Chirawa, Rajasthan (small fires due to flammable materials) in the last five years.
- According to the IIRS report, the Deonar site, which receives the largest amount of waste disposal, has been identified as the source of the highest methane emissions.

7.2 Sanitary Landfill Sites (SLFs)

Two SLFs could be identified viz Kanjurmarg (after 2016) and Pimpri-Chinchwad,Pune (before 2016) as possible methane emission sources closest to the locations identified by IIRS, ISRO. Detailed assessment of these sites is given in **Table 6.2**, Following are the observations

- Gas collection system is installed only at Kanjurmarg, Greater Mumbai. Methane emissions not reported for this site. Collection system not provided at Pimpri-Chinchwad,Pune. Methane emission reported from this site. A fire incident was reported at the Pimpri-Chinchwad site, with the cause not ascertained
- Ambient air quality is monitored at both SLFs viz Pimpri-Chinchwad & Kanjurmarg. The PM_{10} concentration is exceeding NAAQS norms at both SLFs. Report is placed at Annexure-IX.
- Both SLFs have been granted authorization by SPCBs, valid until October 2026 for Kanjurmarg and December 2024 for Pimpri-Chinchwad.
- Leachate collection systems are installed at both SLFs.

7.3 Oil and Gas Establishments.

5 Oil & Gas establishments - in 05 cities of Assam (Tinsukia, Dibrugarh & Nazira) and Rajasthan (Jaisalmer & Barmer) could be identified as possible methane emission sources closest to the locations identified by IIRS, ISRO. Detailed assessment of these sites is given in **Table 6.3**, Following are the observations

- The content of methane in the extracted Gas varies from 16- 89%.
- Methane flaring varies from 0.34 to 100% (100% at Barmer due to high CO_2 content). Consents are granted to all 05 No. of O&G sites by the respective SPCBs/PCCs.
- All O & G units are equipped with fire prevention arrangements as reported by SPCBs. Emergency response plan for fire prevention is available at all O & G sites.
- Ambient air quality is measured at all sites during 2024 (except Nazira during 2023). Compliance to the standards is given at all sites for ambient air quality

except at Barmer having high PM10 concentration. Ambient air quality report of all O&G sites is attached as **(Annexure X**)

- Methane detectors have been provided at all sites. Mitigation measures taken for reduction in organic emission including methane have been taken at all sites which mainly includes, LEL monitoring System, High-energy ignition based remote ignition system, Online Gas monitoring system, Preventive maintenance of equipment, Installation of advance flaring system, Vapour recovery unit to capture methane emission, Installation of leak detection and repair system, Methane oxidising Bio filters, Regular assessments and audits etc.
- One fire incident has been reported at Nazira site during the year 2023 due to gasket failure.
- Sites with low conversion rates of methane to products and high flaring rates have reported higher methane generation. Additionally, sites with nearly 100% conversion to products have also reported significant methane generation.
- The GPS locations of Nazira was visited by Regional Office, Assam SPCB on July 03, 2024 ,at Nazira and it was informed that ,there are 8 nos of ONGCL installations such as Gelekey GGS-2, Gelekey CTF, Gelekey ETP (old), Gelekey WIP(old) , Gelekey New ETP-WIP, Gelekey CPP, Gelekey GCP-1 & Gelekey GCP-2 and 3.The technical flaring of natural gas generated from GGS-2 and GCPs is being flared in the ground flare pit, enclosed by asbestos sheets which is approx 250-300 meters (aerial distance) from the installations and has shown the same GPS coordinates as mentioned by ISRO.The detailed information in the prescribed format has been shared by RO, Shivsagar, Assam SPCB is attached in Annexure-VIII.

8.0 CONCLUSIONS

a) Methane generation at the hotspots reported in the IIRS report may have correlation to the SWM facilities / O&G establishments operational at these sites.

b) It is observed that fresh waste is still being disposed at three identified dumpsites viz. (Chirawa, Taranagar & Deonar). Concerned SPCBs to ensure that fresh municipal solid waste is not dumped at these sites.

c) It is observed that bioremediation has been completed only at one of the six dumpsites included in this report. As per provision of SWM Rules,2016 bioremediation was to be completed by April 07, 2021. Hon'ble NGT has issued several directions to the concerned State Authorities for bioremediation of the dumpsites stipulating timeframe. Directions dated January 27, 2021 have also been issued by CPCB for bioremediating sites. In view of above, concerned local authorities are required to submit their action plan for biomining of legacy waste dumpsites. The State Urban Development Department to monitor the implementation in a time bound manner. The concerned SPCBs to ensure implementation in their respective States.

d) Methane detectors have not been installed at any of the dumpsites. Methane detectors at appropriate locations to be installed & necessary fire preventive measures to be implemented at all dumpsites. Directions dated 26.5.2022 have been issued by CPCB under E(P) Act, 1986 to all SPCBs/PCCs for implementation of measures for prevention of fire accidents at dumpsites. Compliance of the same is to be ensured by the concerned SPCBs.

e) Methane monitoring data is not available for any of the six dumpsites, covered in this report. Regular Monitoring of methane at source needs to be carried out

at the dumpsites till bioremediation is completed at these sites. Quarterly monitoring reports to be submitted to the concerned SPCBs. CPCB's Report on "Status of Methane Emission from MSW disposal sites" may be referred to for the purpose.

f) Details of waste disposed at the SLF to be maintained and only segregated inert waste to be permitted to be dumped at the Sanitary Landfill sites in accordance with 15 (zi) of the SWM Rules 2016.

g) Methane monitoring data is not available for any of the two SLFs, covered in this report. Regular Monitoring of methane at these sites be carried out to ensure compliance with lower explosive limit (LEL) in accordance with Schedule I (F)(ii) of SWM Rules. Quarterly monitoring reports to be submitted to the concerned SPCBs.

h) Regular Ambient Air Quality Monitoring to be conducted at SLF Sites as per clause (F) of Schedule I of SWM Rules, 2016 and quarterly reports to be submitted to the SPCB/PCC.

i) It was observed that gas collection system has been installed at the SLF of Kanjurmarg, but not at Pimpri Chinchwad, Pune. Necessary steps to be taken for Collection and Utilization for energy /flaring of methane gas at SLF as per Schedule I (F) (ii) of SWM Rules, 2016.

j) The SLFs should install Leakage detection and repair system and undertake preventive maintenance of the Methane collection and utilization system ensuring that the concentration of methane gas generated at landfill site shall not exceed 25 per cent of the lower explosive limit (LEL) as stipulated under Schedule I (F) (ii) of SWM Rules, 2016.

k) The quantity of methane generated from dumpsites/ SLFs to be reported on annual basis to the SPCB/PCC.

l) SPCBs/PCCs to ensure implementation of aforementioned measures not only at dumpsites/ SLFs covered in this report but at all dumpsites/ SLFs in the Country.

m) O&G establishments should ensure maximum conversion of methane to products. They should further optimize their process to identify and curtail the source of methane emission.

S.No.	Name & Designation of Joint Committee Members	Signature
1	(Mrs. Divya Sinha) Director & Divisional Head , UPC-II, CPCB	
2	(Sh. Amit Love) Scientist 'E', MoEF&CC	
3	(Dr. Raghvendra Pratap Singh) Director, Indian Institute of Remote Sensing (IIRS) , ISRO, Dehradun	
4	(Sh. Sujit Dholam) Regional Officer (HQ) , Maharashtra	
5	Sh. Jagdish Choudhary Regional Officer , Jaisalmer, Rajasthan	
6	(Sh. Rajkumar Sehra) Regional Officer, Balotra , Rajasthan	
7	(Sh. Deepak Dhanetwal) Regional Officer , Jhunjhunu , Rajasthan	
8	(Dr. Jignasa Oza) Regional Officer, Surat, Gujarat	
9	(Dr. Talika Patel) Regional Officer, Ahmedabad , Gujarat	
10	(Sh. Hiren Pegu) EE and Regional Officer , Tinsukia , Assam	
11	(Sh. Jayanta Kumar Das) Regional Executive Engineer, Sivasagar , Assam	

Annexure-I

Item No. 01 Court No. 2

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 247/2024

News item titled "Ahmedabad Surat landfills among worst three methane hotspots in India" appearing in the Times of India dated 07.02.2024

Date of hearing: 19.03.2024

CORAM: HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE DR. A. SENTHIL VEL, EXPERT MEMBER

ORDER

1. This Original Application (hereinafter referred to as '**OA**') under Section 14 and 15 of National Green Tribunal Act, 2010 (hereinafter referred to as '**NGT Act, 2010'**) has been registered in *suo-motu* exercise of jurisdiction based on a news item titled "Ahmedabad Surat landfills among worst three methane hotspots in India" published in daily newspaper 'Times of India' dated 07.02.2024.

2. The news publication highlights principally emission of high-level Methane gas from landfill sites at Ahmedabad and Surat based on a study conducted by Indian Space Research Organization (hereinafter referred to as '**ISRO'**). However, news item contains a Chart in respect to certain cities of States of Maharashtra, Gujarat, Rajasthan and Assam giving details of landfill sites thereat and average emission of Methane from said sites causing huge pollution.

3. It is said that about 14.43% of India's carbon emissions come from methane emanating from agriculture and waste sites. Decomposition process at landfill sites creates unhealthy conditions and releases substantial emissions even after landfills are closed. Methane's impact is particularly concerning as it is 25 times more potent than carbon dioxide

at trapping heat in atmosphere. News item also shows that this must be the condition Pan India inasmuch as there is emission of Methane from solid/municipal waste landfills across the country and no effective steps are being taken by statutory regulators as also those who are responsible for proper handling, management and disposal of such sites.

4. In our view, the above contents of above news item give rise to a substantial question relating to environment due to implementation of Scheduled Enactments under NGT Act, 2010 and the issue is not confined to four States in respect whereof some details have been given but it appears to be a Pan India problem. However, for the time being, in order to collect primary informations, we find it appropriate to call for a factual report in respect of landfill sites mentioned in said news item report in cities Central Mumbai, Pune and Kalyan in State of Maharashtra, Ahmedabad and Surat in State of Gujarat, Barmer, Jaisalmer, Taranagar and Chirawa in State of Rajasthan and Nazira, Dibrugarh-Tinsukia in State of Assam.

5. For the purpose of submitting factual report, we constitute a Joint Committee comprising a Senior Officer to be nominated by Member Secretary, Central Pollution Control Board (hereinafter referred to as '**CPCB**), concerned Regional Officers of respective State Pollution Control Boards, a representative of ISRO to be nominated by Director; and a Senior Scientist nominated by Ministry of Environment, Forest and Climate Change (hereinafter referred to as '**MoEF&CC**).

6. CPCB shall be the nodal agency for coordination and compliance.

7. The said Committee shall collect relevant factual information; if necessary, visit the sites and submit factual report particularly relating to compliance of such sites with Schedule I of Solid Waste Management

Rules, 2016 (hereinafter referred to as '**MSW Rules, 2016**') and remedial measures taken on para (F) of the said Schedule within three months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF. The report should also give status of Authorization granted by State Pollution Control Bard, accumulation of waste in quantified terms on sites in question and ambient air quality monitoring data around these sites as per MSW Rules, 2016. The Committee may also indicate mitigation measures taken for reduction in organic emissions, including methane from ONGC sites separating them from landfill sites as the case may be.

8. We also implead following as respondents in the matter:

(1). MoEF&CC through its Secretary, Indira Paryavaran Bhawan Jorbagh Road New Delhi – 110 003.

(2). CPCB through its Member Secretary, Parivesh Bhawan, East Arjun Nagar, Delhi-110032

(3). Maharashtra Pollution Control Board through its Member Secretary, Kalpataru Point, 2nd – 4th Floor Opp. Cine Planet Cinema, Nr. Sion Circle, Sion (E) Mumbai – 400 022

(4). Gujarat Pollution Control Board through its Member Secretary, Paryavan Bhavan, Sector 10- A Gandhinagar – 382 043.

(5). Rajasthan State Pollution Control Board through its Member Secretary, 4, Jhalana Institutional Area, Jhalana Doongri, Jaipur, Rajasthan - 302 004.

(6). Assam Pollution Control Board through its Member Secretary, Bamunimaidan, Guwahati, Assam – 781021.

(7). State of Maharashtra through Additional Chief Secretary/Principal Secretary, Environment and Forest

Department, Govt. of Maharashtra, New Administrative Bhavan, 15th Floor, Madame Kama Road, Mantralaya, Mumbai - 400 032,

(8). State of Gujarat through Additional Chief Secretary/Principal Secretary, Environment and Forest Department, Government of Gujarat Block 14, 8th floor, Sachivalaya, Gandhinagar - 382 010.

(9). State of Assam through Additional Chief Secretary/Principal Secretary, Environment and Forest Department, 2nd Floor, Janata Bhawan, Dispur.

(10). State of Rajasthan through Additional Chief Secretary/Principal Secretary, Environment and Forest Department, Govt. of Rajasthan, Secretariate, Jaipur, Rajasthan 302005.

9. Registry is directed to issue notices to above respondents so that they may file their responses within two months.

10. List on 05.07.2024.

11. A copy of this order be forwarded to CPCB, SPCBs of Maharashtra, Gujarat, Rajasthan and Assam, ISRO and MoEF&CC by e-mail for compliance.

Sudhir Agarwal, JM

Dr. A. Senthil Vel, EM

March 19, 2024
Original Application No. 247/2024
DV

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA

File No. CM-13011/67/2024-LAW-HO-CPCB-HO Date: 18.04.2024

To,

The Member Secretary,
SPCBs – Assam, Gujarat, Maharashtra, Rajasthan

Director,
Indian Space Research Organisation,
ISRO Headquarters, Antariksh Bhavan, New BEL Road
Bengaluru-560 094

Director, CP Division,
Ministry of Environment, Forest and Climate Change
Indira Paryavaran Bhawan
Jorbagh Road New Delhi – 110 003

Sub: - Hon'ble NGT, PB Order dated 19.03.2024 (page no. 1-4) in OA No. 247/2024, News item titled "Ahmedabad Surat landfills among worst three methane hotspots in India" appearing in the Times of India dated 07.02.2024

Sir/Madam,

Enclosed please find herewith Hon'ble NGT order dated 19.3.2024 issued in abovementioned matter wherein directions given in Para 5, 6 & 7 are reproduced below:

Para 5 "for the purpose of submitting factual report we constitute a Joint Committee comprising a Senior Officer to be nominated by Member Secretary, Central Pollution Control Board (hereinafter referred to as CPCB,) concerned Regional Officers of respective State Pollution Control Boards, a representative of ISRO to be nominated by Director and a Senior Scientist nominated by Ministry of Environment, Forest and Climate Change (hereinafter referred to as MoEF&CC)"

Para 6 "CPCB shall be the nodal for coordination and compliance."

Para 7 "The said committee shall collect relevant factual information: if necessary, visit the sites and submit factual report particularly relating to compliance of such sites with Schedule I of Solid Waste Management Rules, 2016 (hereinafter referred to as MSW Rules, 2016) and remedial measures taken on Para (F) of the said Schedule within three months by email at

judicial-ngt@gov.in preferably in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF. The report should also give status of Authorisation granted by State Pollution Control Board, accumulation of waste in quantified terms on sites in question and ambient air quality monitoring data around these sites as per MSW Rules, 2016. the Committee may also indicate mitigation measures taken for reduction in organic emissions, including methane from ONGC sites separating them from landfill sites as the case may be."

In this regard, it is requested to forward nomination to represent Joint Committee for ensuring compliance of the Hon'ble NGT order dated 19.3.2024 preferably within one week.

Yours faithfully

(Divya Sinha)
Director & In charge, UPC-II

Encl. As above

Copy to: -

1	Divisional Head, Law Section	:	For information, please
2	Regional Directors, Regional Directorates – Shillong, Vadodara, Pune, Bhopal	:	For information & follow up with concerned SPCBs, please
3	PS to MS	:	For kind information to MS, please

(Divya Sinha)

O/C

Item No. 01 Court No. 2

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 247/2024

News item titled "Ahmedabad Surat landfills among worst three methane hotspots in India" appearing in the Times of India dated 07.02.2024

Date of hearing: 19.03.2024

CORAM: HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE DR. A. SENTHIL VEL, EXPERT MEMBER

ORDER

1. This Original Application (hereinafter referred to as '**OA**') under Section 14 and 15 of National Green Tribunal Act, 2010 (hereinafter referred to as '**NGT Act, 2010'**) has been registered in *suo-motu* exercise of jurisdiction based on a news item titled "Ahmedabad Surat landfills among worst three methane hotspots in India" published in daily newspaper 'Times of India' dated 07.02.2024.

2. The news publication highlights principally emission of high-level Methane gas from landfill sites at Ahmedabad and Surat based on a study conducted by Indian Space Research Organization (hereinafter referred to as '**ISRO'**). However, news item contains a Chart in respect to certain cities of States of Maharashtra, Gujarat, Rajasthan and Assam giving details of landfill sites thereat and average emission of Methane from said sites causing huge pollution.

3. It is said that about 14.43% of India's carbon emissions come from methane emanating from agriculture and waste sites. Decomposition

at trapping heat in atmosphere. News item also shows that this must be the condition Pan India inasmuch as there is emission of Methane from solid/municipal waste landfills across the country and no effective steps are being taken by statutory regulators as also those who are responsible for proper handling, management and disposal of such sites.

4. In our view, the above contents of above news item give rise to a substantial question relating to environment due to implementation of Scheduled Enactments under NGT Act, 2010 and the issue is not confined to four States in respect whereof some details have been given but it appears to be a Pan India problem. However, for the time being, in order to collect primary informations, we find it appropriate to call for a factual report in respect of landfill sites mentioned in said news item report in cities Central Mumbai, Pune and Kalyan in State of Maharashtra, Ahmedabad and Surat in State of Gujarat, Barmer, Jaisalmer, Taranagar and Chirawa in State of Rajasthan and Nazira, Dibrugarh-Tinsukia in State of Assam.

5. For the purpose of submitting factual report, we constitute a Joint Committee comprising a Senior Officer to be nominated by Member Secretary, Central Pollution Control Board (hereinafter referred to as '**CPCB**), concerned Regional Officers of respective State Pollution Control Boards, a representative of ISRO to be nominated by Director; and a Senior Scientist nominated by Ministry of Environment, Forest and Climate Change (hereinafter referred to as '**MoEF&CC**).

6. CPCB shall be the nodal agency for coordination and compliance.

Rules, 2016 (hereinafter referred to as '**MSW Rules, 2016**') and remedial measures taken on para (F) of the said Schedule within three months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF. The report should also give status of Authorization granted by State Pollution Control Bard, accumulation of waste in quantified terms on sites in question and ambient air quality monitoring data around these sites as per MSW Rules, 2016. The Committee may also indicate mitigation measures taken for reduction in organic emissions, including methane from ONGC sites separating them from landfill sites as the case may be.

8. We also implead following as respondents in the matter:

(1). MoEF&CC through its Secretary, Indira Paryavaran Bhawan Jorbagh Road New Delhi – 110 003.

(2). CPCB through its Member Secretary, Parivesh Bhawan, East Arjun Nagar, Delhi-110032

(3). Maharashtra Pollution Control Board through its Member Secretary, Kalpataru Point, 2nd – 4th Floor Opp. Cine Planet Cinema, Nr. Sion Circle, Sion (E) Mumbai – 400 022

(4). Gujarat Pollution Control Board through its Member Secretary, Paryavan Bhavan, Sector 10- A Gandhinagar – 382 043.

(5). Rajasthan State Pollution Control Board through its Member Secretary, 4, Jhalana Institutional Area, Jhalana Doongri, Jaipur, Rajasthan - 302 004.

(6). Assam Pollution Control Board through its Member

Department, Govt. of Maharashtra, New Administrative Bhavan, 15th Floor, Madame Kama Road, Mantralaya, Mumbai - 400 032,

(8). State of Gujarat through Additional Chief Secretary/Principal Secretary, Environment and Forest Department, Government of Gujarat Block 14, 8th floor, Sachivalaya, Gandhinagar - 382 010.

(9). State of Assam through Additional Chief Secretary/Principal Secretary, Environment and Forest Department, 2nd Floor, Janata Bhawan, Dispur.

(10). State of Rajasthan through Additional Chief Secretary/Principal Secretary, Environment and Forest Department, Govt. of Rajasthan, Secretariate, Jaipur, Rajasthan 302005.

9. Registry is directed to issue notices to above respondents so that they may file their responses within two months.

10. List on 05.07.2024.

11. A copy of this order be forwarded to CPCB, SPCBs of Maharashtra, Gujarat, Rajasthan and Assam, ISRO and MoEF&CC by e-mail for compliance.

Sudhir Agarwal, JM

Dr. A. Senthil Vel, EM

March 19, 2024

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA

File No.CM-13011/67/2024-LAW-HO-CPCB-HO Date: 10.06.2024

To,

All Joint Committee Members
(As per the list enclosed)

Sub: - **Minutes of the meeting held on 03.06.2024 , 4.00 PM in compliance to Hon'ble NGT (PB) Order dated 19.03.2024 in OA No. 247/2024, News item titled" Ahmedabad & Surat landfills among worst three methane hotspots in India" appearing in the Times of India dated 07.02.2024.**

Sir/Madam,

This is in reference to the VC meeting held on 03.06.2024 on the above said subject. The minutes of the meeting is enclosed herewith for your kind perusal & necessary action, please.

Yours faithfully,

(Divya Sinha)
Director & Divisional Head, UPC-II

Encl: As above

Copy to:

1.	Concerned Regional Directors (Bhopal, Shillong, Vadodara & Pune	:	For information and follow up Concerned SPCBs/PCCs please
2.	Sh Amit Love 6th floor, Jal Wing Indira Paryavaran Bhawan, Jorbagh Road, Aliganj New Delhi-110003	:	For information, please
3.	DH , Law Section	:	For information, please
4.	PS to MS	:	For kind information to 'MS', please

(Divya Sinha)

Central Pollution Control Board

"Parivesh Bhawan", East Arjun Nagar, Delhi-110032

Minutes of the meeting held at 4.00PM on dated 03/06/2024 in compliance to Hon'ble NGT, PB Order dated 19.03.2024 in OA No. 247/2024, News item titled "Ahmedabad Surat landfills among worst three methane hotspots in India" appearing in the Times of India dated 07.02.2024.

A meeting was convened by CPCB at 4.00 PM on June 03, 2024 through video conferencing in compliance with Hon'ble NGT order dated 19.03.2024. Members of Joint Committee, officials of Regional Offices, concerned State Pollution Control Board, concerned officials of Regional Directorates of Pune, Bhopal, Vadodara, Shillong and CPCB officials participated in the Meeting. List of participants is attached at **Annexure-I**

Divisional Head, UPC-II, CPCB welcomed the participants and in her opening remarks, briefed the committee on the matter.

Mrs Suniti Parashar Scientist 'C', UPC-II division gave a detailed presentation covering agenda of the meeting, composition of Joint Committee constituted by Hon'ble NGT & the directions of Hon'ble NGT vide Order dated 19.3.2024 and other relevant issues. The presentation given by CPCB is enclosed as **Annexure II**. Further the formats which were shared with the SPCBs to provide requisite information as per the Hon'ble NGT order were also shared with the Committee members. Formats are attached as **Annexure III**

Subsequently, Indian Institute of Remote Sensing (IIRS) , ISRO, Dehradun made a presentation on methane emission from Landfill sites and findings of the study conducted by them . The presentation made by IIRS, ISRO Dehradun is placed as **Annexure IV.**

Sh. Amit Love, Scientist E, MoEF&CC enquired whether the validation and ground truthing of the data obtained in the study conducted by IIRS had been done or not. He

further enquired if the validity/reliability of the data which has been obtained from Carbon Mapper and used in the study has been ascertained or not.

It was informed by IIRS that Carbon mapper is an open source data provider. It provides emission fluxes, plumes size and data. Validation of ISRO data is required however, the findings are relatively correct to some extent but may not be an absolute number.

Further, four States viz Maharashtra, Gujarat, Rajasthan and Assam shared the preliminary information about Solid waste management status in 12 Cities including waste dumped /disposed, landfill sites, status of bio mining, provision of ambient air quality monitoring, methane monitoring etc.

Based on a detailed deliberations and discourses held by the joint Committee following decisions were made:

i. Ground truthing for the ISRO data related to methane as feasible, may be carried out.
ii. Some cities have multiple Landfill /legacy sites. Based on IIRS, ISRO data and findings of where high concentration of Methane gas has been detected through Satellite studies, such landfill/dumpsites are to be identified for assessment as per Hon'ble NGT order.
iii. SPCBs to submit the duly filled up format by 8th of June, 2024. The information shall be compiled. The same shall be assessed by CPCB. The overview of the information provided by SPCBs/PCCs and proposed course of action shall be discussed in the next Committee meeting
iv. It is observed that very limited information is available w.r.t Methane emission, its collection and utilisation at Landfills/legacy waste dumpsites in the States as per the information provided by SPCBs/PCCs. Concerned Regional Directorates of CPCB, MoEF&CC as well as ISRO shall be associated for the detailed assessments, as per requirement.

The meeting ended with vote of thanks to all.

*****

Annexure I

List of Participants attended the meeting held on 03/06/2024 at 4.00 PM in compliance to Hon'ble NGT, PB Order dated 19.03.2024 in OA No. 247/2024, News item titled "Ahmedabad Surat landfills among worst three methane hotspots in India" appearing in the Times of India dated 07.02.2024.

S N	Officials and Designation	Organization	Email id	Phone No
1	Ms. Divya Sinha, Director and Divisional Head UPC-II	CPCB	divyasinha.cpcb@nic.in	9868262316
2	Sh. Amit Love, Sc. E	MOEF&CC	amit.love@nic.in	9968689432
3	Dr. Raghavendra Pratap Singh, Director	IIRS, ISRO, Dehradun	director@iirs.gov.in	+91 135 2524101
4	Dr. Asfa Siddaqui	IIRS Dehradun	asfa@iirs.gov.in	9557448903
5	Sh Sujit Dholam , Regional Officer	(HQ) SPCB , Maharashtra	rohq@mpcb.gov.in	9820255945
6	Sh. Jagdish Choudhary, Regional Officer , Jaisalmer	SPCB , Rajasthan	rorpcb.jai@gmail.com	7023042914
7	Sh. Rajkumar Sehra, Regional Officer, Balotra	SPCB , Rajasthan	ro.balotara@gmail.com	9829664373
8	Sh. Deepak dhanetwal,Regional Officer , Jhunjhunu	SPCB , Rajasthan	rorpcb.jjn@gmail.com	9785291723
9	Dr Jignabaen Oza , Regional Officer , Surat	SPCB , Gujarat	ro-gpcb-sura@gujarat.gov.in	9825329663
10	Dr Talika Patel (Regional Officer , Ahmedabad)	SPCB ,Gujarat	ro-gpcb-ahmc@gujarat.gov.in	9974380240
11	Sh. Hiren Pegu(Executive Engineer and Regional Officer , Tinsukia	SPCB Assam	ro_dibrugarh@pcbassam.org rodibrugarh.pcba@gmail.com	9435154044
12	Sh. Jayanta Kumar Das(Regional Executive Engineer, Sivasagar)	SPCB Assam	rosivasagar.pcba@gmail.com ro_sivasagar@pcbassam.org	9435401956

CPCB Officials:

S N	Officials and Designation	Organization	Email id	Phone No
1	Sh. P. Jagan, Regional Director	RD Bhopal	jagan191.cpcb@gov.in	9755559745
2	Sh. M K Choudhary, Regional Director	RD Shillong	mkc.cpcb@gov.in	9868129126
3	Sh. Sashikant Lokhande, Sc. E	RD Pune	lokhandesl.cpcb@gov.in	9974199416
4	Mrs Kavitha B.V, Sc. E	RD Vadodara	kavitha.cpcb@nic.in	9810031261
5	Dr Y.K. Saxena, Sc. C	RD Bhopal	yksaxena.cpcb@nic.in	9425677776
6	Mrs. Suniti Parashar, Sc. C	CPCB, HO	suniti.cpcb@gov.in	9868819711
7	Sh. Amit Kumar, Sc. B	CPCB, HO	amitk22.cpcb@gov.in	8303154631

*****

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA

File No. CM-13011/67/2024-LAW-HO-CPCB-HO

Date: 25-06-2024

To,

All Joint Committee Members
(As per the list enclosed)

Sub: - Minutes of the Second meeting held on 18.06.2024, 4.30PM in compliance to Hon'ble NGT (PB) Order dated 19.03.2024 in OA No. 247/2024, News item titled "Ahmedabad Surat landfills among worst three methane hotspots in India" appearing in the Times of India dated 07.02.2024

Sir/Madam,

This is in reference to the VC meeting held on 18.06.2024 on the above said subject. The minutes of the second meeting is enclosed herewith for your kind perusal & necessary action, please.

Yours faithfully,

(Divya Sinha)
Director & Divisional Head, UPC-II

Encl.: As above

Copy to:

1.	Regional Director, Regional Directorate – Bhopal, Pune, Shillong, and Vadodara	:	For information & follow up with concerned SPCBs/PCCs, please
2.	Sh. Amit Love, Scientist 'E', Ministry of Environment, Forest and Climate Change 6th floor, Jal Wing, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi-110003	:	For information, please
3.	DH, Law Section	:	For information, please
4.	PS to MS	:	For kind information to 'MS', please

(Divya Sinha)

List of Concerned Officers & Organizations (Joint Committee Members)

SN	Officer & Organization	Email
1.	Sh. Amit Love, Scientist 'E', Ministry of Environment, Forest and Climate Change Indira Paryavaran Bhawan, Jorbagh Road, New Delhi — 110 003	amit.love@nic.in;
2.	Dr. Raghavendra Pratap Singh Director, Indian Institute of Remote Sensing ISRO, Govt. of India 4, Kalidas Road, Dehradun- 248001	director@iirs.gov.in;
3.	Sh. Sujit Dholam, Regional Officer (HQ), Maharashtra Pollution Control Board Kalpataru Point, 3rd floor, Sion Matunga Scheme Road No. 8 Near Sion Circle, Sion (East) Mumbai-400022	rohq@mpcb.gov.in;
4.	Sh. Rajkumar Sehra, Regional Officer, Rajasthan State Pollution Control Board, Regional Office, Balotra Infront of JdVVNL Office, Jasol Fanta, Nakoda ji Road, Balotra, District- Barmer Pincode: 344022	ro.balotara@gmail.com;
5.	Sh. Jagdish Choudhary, Regional Officer, Rajasthan State Pollution Control Board, Regional Office, Jaisalmer Field Hostel of Indira Gandhi Nahar Pariyojna Residential Colony, Jaisalmer, Pincode: 345001	rorpcb.jai@gmail.com;
6.	Sh. Deepak Dhanetwal Regional Officer, Rajasthan State Pollution Control Board, Regional Office, Jhunjhunu, C.P.1/90, Rajcomplex, 1st Floor, RIICO Industrial Area Phase-2, Jhunjhunu Pincode: 333001	rorpcb.jjn@gmail.com;

SN	Officer & Organization	Email
7.	Dr. Jignaben Oza, Regional Officer, Surat Gujarat Pollution Control Board RO Surat Plot No:11-12/2,3 GIDC-Pandesara Surat-394221	ro-gpcb-sura@gujarat.gov.in;
8.	Dr. Talika Patel, Regional Officer, Ahmedabad Gujarat Pollution Control Board RO Ahmedabad Room No. 201, Old Buidling, Paryavaran Bhavan, Sector 10-A, Gandhinagar - 302010	ms-gpcb@gujarat.gov.in; uh-gpcb-msw@gujarat.gov.in; ro-gpcb-ahmc@gujarat.gov.in;
9.	Sh. Hiren Pegu, Executive Engineer and Regional Officer, Tinsukia Pollution Control Board, Assam RO Tinsukia Bairagimath, Dibrugarh Pin: 786001	ro_dibrugarh@pcbassam.org; rodibrugarh.pcba@gmail.com;
10.	Sh. Jayanta Kumar Das, Executive Engineer, Regional Laboratory cum Office Pollution Control Board, Assam Melachakar, Sibsagar, PIN: 785640	ro_sivasagar@pcbassam.org; rosivasagar.pcba@gmail.com;

Central Pollution Control Board
"Parivesh Bhawan", East Arjun Nagar, Delhi-110032

Minutes of the Second meeting held on 18/06/2024 at 4:30 PM in compliance to Hon'ble NGT, PB Order dated 19.03.2024 in OA No. 247/2024, on basis of News item titled "Ahmedabad Surat landfills among worst three methane hotspots in India" appearing in the Times of India dated 07.02.2024.

Second Meeting of the Joint Committee was held on 18.06.2024 at 4:30 PM in OA No. 247/2024, under the Chairpersonship of Mrs Divya Sinha, Director and Divisional Head, UPC-II to discuss about the information submitted by concerned regional offices w.r.t format circulated by CPCB. List of participants is attached at **Annexure-I.**

At the outset, Mrs Divya Sinha Divisional Head, UPC-II, CPCB welcomed the participants and informed the committee that the information received so far has been compiled by CPCB and shall be presented in the meeting.

Thereafter, Mrs. Suniti Parashar Scientist 'C', UPC-II division made a detailed presentation on the compiled information w.r t individual and overall status on dumpsites & Sanitary Landfill sites (SLFs), methane mitigation measures taken, ambient air quality monitoring around the dumpsites/SLF etc. She also highlighted the identified gap/incomplete details provided by respective Regional Offices of concerned SPCB. The presentation made by CPCB is enclosed as **Annexure-II**.

Ms. Asfa Siddique, Scientist, Indian Institute of Remote Sensing (IIRS), ISRO, Dehradun clarified that some sites viz Jaisalmer, Barmer, Dibrugarh, Tinsukia, and Nazira, exhibit methane emissions primarily from Oil & Gas (O&G) operations rather than from solid waste sites. She further suggested that CPCB should verify these sites through ground truthing.

Sh. Amit Love, Scientist E, MoEF&CC suggested to share the coordinates provided by regional offices with IIRS, ISRO, Dehradun so that they can overlay with their identified sites of methane emission and inform the committee about the specific locations. He inquired about the number of sanitary landfill sites (SLFs) equipped with gas control systems, operations of these SLFs commenced before or after 2016, causes of landfill fires at the site, and whether such fires were primarily due to methane emissions. Based on these points, the committee can make informed decisions.

Sh Mantu Kumar Chaudhary, Regional Director, Regional Directorate, Shillong opined that potential for methane emission depends mainly on the depth, age and characteristics of the waste deposited at the dumping sites.

Sh. Jayanta Kumar Das, Executive Engineer, Regional Office, Shivsagar, SPCB Assam, requested to include concerned ULBs in the meeting from next time if required.

Based on deliberations during the meeting following actions were decided:

i. CPCB to share the coordinates of landfill/dumpsites to IIRS, ISRO (**Action: CPCB**).
ii. IIRS, ISRO to overlay the coordinates of sites provided by CPCB & inform the committee regarding their locations relative to the coordinates reported by IIRS (**Action: IIRS**).
iii. Format to be shared with SPCBs/PCCs to provide the information w.r.t as Oil & Gas Establishments located in the selected cities as per IIRS report (**Action: CPCB**).
iv. Regional Offices of concerned SPCB to provide site-specific information after verifying the details provided with the ULBs, as per the format circulated by CPCB (**Action: SPCB ROs**).
v. CPCB to compile the inputs & prepare a matrix of the site containing the relevant information such as Location & Coordinates of sites, Status of bio mining, provision for collection of methane gas, height & age of dumping sites, reasons of landfill fire, if occurred in last five years, status of CTO/Authorization of SLF, methane mitigation / monitoring measures taken etc., Methane flux reported in IIRS report (**Action: CPCB**).
vi. CPCB to share the compiled results with the Committee members, based on which the future course of actions on the matter (**Action: CPCB & committee members**).

The meeting ended with vote of thanks to all.

*****

Annexure-I

List of Participants who attended the meeting held on 18/06/2024 at 4.30 PM in compliance to Hon'ble NGT, PB Order dated 19.03.2024 in OA No. 247/2024, News item titled "Ahmedabad Surat landfills among worst three methane hotspots in India" appearing in the Times of India dated 07.02.2024.

S N	Officials and Designation	Organization	Email id	Phone No
1	Ms. Divya Sinha, Director and Divisional Head, UPC-II	CPCB	divyasinha.cpcb@nic.in	9868262316
2	Sh. Amit Love, Sc. E	MoEF&CC	amit.love@nic.in	9968689432
3	Dr. Asfa Siddiqui	IIRS, ISRO Dehradun	asfa@iirs.gov.in	9557448903
4	Sh Sujit Dholam, Regional Officer	(HQ) SPCB, Maharashtra	rohq@mpcb.gov.in	9820255945
5	Sh. Jagdish Choudhary, Regional Officer, Jaisalmer	SPCB, Rajasthan	rorpcb.jai@gmail.com	7023042914
6	Sh. Rajkumar Sehra, Regional Officer, Balotra	SPCB, Rajasthan	ro.balotara@gmail.com	9829664373
7	Sh. Deepak Dhanetwal,Regional Officer , Jhunjhunu	SPCB, Rajasthan	rorpcb.jjn@gmail.com	9785291723
8	Dr Jignabaen Oza, Regional Officer, Surat	SPCB, Gujarat	ro-gpcb-sura@gujarat.gov.in	9825329663
9	Dr Talika Patel (Regional Officer, Ahmedabad)	SPCB, Gujarat	ro-gpcb-ahmc@gujarat.gov.in	9974380240
10	Sh. Hiren Pegu (Executive Engineer and Regional Officer, Tinsukia	SPCB Assam	ro_dibrugarh@pcbassam.org rodibrugarh.pcba@gmail.com	9435154044
11	Sh. Jayanta Kumar Das (Regional Executive Engineer, Sivasagar)	SPCB Assam	rosivasagar.pcba@gmail.com ro_sivasagar@pcbassam.org	9435401956

CPCB Officials:

S N	Officials and Designation	Organization	Email id	Phone No
1	Sh. P. Jagan, Regional Director	RD - Bhopal	jagan191.cpcb@gov.in	9755559745
2	Sh. M K Choudhary, Regional Director	RD - Shillong	mkc.cpcb@gov.in	9868129126
3	Sh. Sashikant Lokhande, Sc. E	RD - Pune	lokhandesl.cpcb@gov.in	9974199416
4	Mrs Kavitha B.V, Sc. E	RD - Vadodara	kavitha.cpcb@nic.in	9810031261
5	Sh Nripendra Semwal, Sc C,	RD - Vadodara	semwaln.cpcb@gov.in	9722027220
6	Dr Y.K. Saxena, Sc. C	RD - Bhopal	yksaxena.cpcb@nic.in	9425677776
7	Mrs. Suniti Parashar, Sc. C	CPCB, HO	suniti.cpcb@gov.in	9868819711
8	Sh Madnesh Kumar Dubey, Sc B	CPCB, HQ	mkdubey.cpcb@gov.in	956070083
9	Sh. Amit Kumar, Sc. B	CPCB, HO	amitk22.cpcb@gov.in	8303154631

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केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA

File No.CM-13011/67/2024-LAW-HO-CPCB-HO Date: 02.07.2024

To,

All Joint Committee Members
(As per the list enclosed)

Sub: - Minutes of the third meeting held on 2.7.2024, 2.30 PM in compliance to Hon'ble NGT (PB) Order dated 19.03.2024 in OA No. 247/2024, News item titled" Ahmedabad Surat landfills among worst three methane hotspots in India" appearing in the Times of India dated 07.02.2024.

Sir/Madam,

This is in reference to the VC meeting held on 02.07.2024 at 2:30 PM on the above said subject. The minutes of the third meeting is enclosed herewith for your kind perusal & necessary action, please.

Yours faithfully,

(Divya Sinha)
Director & Divisional Head, UPC-II

Encl: As above

Copy to:

1.	Regional Director-Regional Directorate –Bhopal, Pune, Shillong and Vadodara	:	For information and follow up concerned SPCBs/PCCs please
2.	Sh Amit Love 6th floor, Jal Wing Indira Paryavaran Bhawan, Jorbagh Road, Aliganj New Delhi-110003	:	For information, please
3.	DH, Law Section	:	For information, please
4.	PS to MS	:	For kind information to 'MS', please

(Divya Sinha)

Central Pollution Control Board

“Parivesh Bhawan”, East Arjun Nagar, Delhi-110032

Minutes of the meeting held at 2.30 PM on dated 02/07/2024 in compliance to Hon'ble NGT, PB Order dated 19.03.2024 in OA No. 247/2024, News item titled "Ahmedabad Surat landfills among worst three methane hotspots in India" appearing in the Times of India dated 07.02.2024.

A meeting was held at 2.30 PM on July 02nd ,2024 through video conferencing under the chairpersonship of Mrs Divya Sinha, Director and Divisional Head, UPC-II with the members of Joint Committee, officials of Regional Offices, concerned State Pollution Control Board, concerned officials of Regional Directorates of Pune, Bhopal, Vadodara, Shillong and CPCB officials in compliance with Hon’ble NGT order dated 19.03.2024. List of participants is attached as **Annexure-I**

Mrs Divya Sinha, Director and Divisional Head, UPC-II welcomed the participants and informed the committee about the directions of Hon’ble NGT and action taken so far for compliance. She informed that, the coordinates of methane emission sources identified by IIRS, ISRO have been compared with those of dumpsites, SLFs, and O&G sites provided by SPCBs. 13 Sites with coordinates that are close to IIRS, ISRO-identified hotspots have been identified with matching coordinates (except 1 Site at Nazira) . She Proposed to carry out further assessment of these 13 sites. The detailed presentation is enclosed as **Annexure II**.

Dr Raghvendra Pratap Singh, Director, IIRS, ISRO informed that methane plumes are spread over a large area and the size of the plume depends upon various composite

factors such as transport of gases, wind direction etc. It was also informed by CPCB that the waste disposal sites which are closest to the coordinates provided in the IIRS, ISRO reports have been identified for further assessments.

Sh Amit Love, Scientist E, MoEF&CC informed that SWM Rules specifies the provision of bioremediation and bio mining of dumpsites. Concerned local authorities are required to prepare action plan and adhere to the same with linkage to Swacch Bharat Mission 1 and 2.

Based on the deliberations held, following decisions were taken:

1) Information as compiled by CPCB for dumpsites, SLFs and Oil and Gas sites in all 12 Cities was endorsed by the committee.
2) The committee recommended that, the concerned officials of SPCB, Assam shall visit the location as specified in the IIRS report (at Nazira) to identify the actual source of methane.
3) SPCBs were requested to provide the remaining information as indicated during the meeting by tomorrow 12.30 PM.

The meeting ended with thanks to all.

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Annexure-I

List of Participants attended the meeting held on 02/07/2024 at 2.30 PM in compliance to Hon'ble NGT, PB Order dated 19.03.2024 in OA No. 247/2024, News item titled "Ahmedabad Surat landfills among worst three methane hotspots in India" appearing in the Times of India dated 07.02.2024.

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1	Ms. Divya Sinha, Director and Divisional Head UPC-II	CPCB	divyasinha.cpcb@nic.in	9868262316
2	Sh. Amit Love, Sc. E	MOEF&CC	amit.love@nic.in	9968689432
3	Dr. Asfa Siddaqui	IIRS Dehradun	asfa@iirs.gov.in	9557448903
4	Sh Sujit Dholam , Regional Officer	(HQ) SPCB , Maharashtra	rohq@mpcb.gov.in	9820255945
5	Sh. Jagdish Choudhary, Regional Officer , Jaisalmer	SPCB , Rajasthan	rorpcb.jai@gmail.com	7023042914
6	Sh. Rajkumar Sehra, Regional Officer, Balotra	SPCB , Rajasthan	ro.balotara@gmail.com	9829664373
7	Sh. Deepak dhanetwal,Regional Officer , Jhunjhunu	SPCB , Rajasthan	rorpcb.jjn@gmail.com	9785291723
8	Dr Jignabaen Oza , Regional Officer , Surat	SPCB , Gujarat	ro-gpcb-sura@gujarat.gov.in	9825329663
9	Dr Talika Patel (Regional Officer , Ahmedabad)	SPCB ,Gujarat	ro-gpcb-ahmc@gujarat.gov.in	9974380240
10	Sh. Hiren Pegu(Executive Engineer and Regional Officer , Tinsukia	SPCB Assam	ro_dibrugarh@pcbassam.org rodibrugarh.pcba@gmail.com	9435154044
11	Sh. Jayanta Kumar Das(Regional Executive Engineer, Sivasagar)	SPCB Assam	rosivasagar.pcba@gmail.com ro_sivasagar@pcbassam.org	9435401956

CPCB Officials:

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2	Sh. M K Choudhary, Regional Director	RD Shillong	mkc.cpcb@gov.in	9868129126
3	Sh. Sashikant Lokhande, Sc. E	RD Pune	lokhandesl.cpcb@gov.in	9974199416
4	Mrs Kavitha B.V, Sc. E	RD Vadodara	kavitha.cpcb@nic.in	9810031261
5	Sh. Nriprendra Semwal Sc. C			
6	Dr Y.K. Saxena, Sc. C	RD Bhopal	yksaxena.cpcb@nic.in	9425677776
7	Mrs. Suniti Parashar, Sc. C	CPCB, HO	suniti.cpcb@gov.in	9868819711
8	Sh. Madnesh Dubey, Sc.B	CPCB, HO	mkdubey.cpcb@gov.in	956070083
9	Sh. Amit Kumar, Sc. B	CPCB, HO	amitk22.cpcb@gov.in	8303154631

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ANNEXURE VI

Details of Literature review

A. STUDY & RESEARCH BY INDIAN INSTITUTE OF REMOTE SENSING (IIRS) , ISRO , DEHRADUN

The lead author of the paper titled “Detecting Methane Emissions from Space in India: analysis using EMIT and Sentinel-5P TROPOMI datasets”, by Dr. Asfa Siddiqui has undertaken the study which is related to detecting methane emissions through remote sensing datasets from EMIT (Earth Mineral Dust Source Investigation Onboard International Space Station) and TROPOMI (Tropospheric Monitoring Instrument) sensors. The document (preprint at Research Square) highlights the methane enhancement over selected plumes at 17 unique locations in India as per data collected until September, 2023. The sites include solid waste, sewage outlet, oil refinery, sewage treatment plant, oil collection station, gas compressor station, Oil India Ltd. station, textile industry and wetlands. The data had been taken from www.carbonmapper.org (a nonprofit data dissemination platform) related to EMIT. The website demonstrates plumes and quantifies the emission fluxes and the same has been reported in the manuscript. The regional hotspots at few locations have also been identified using TROPOMI sensor. The authors indicated the role of remote sensing in detecting methane hotspots but informed that methane quantification need ground verification. Methane detection from satellite is a very challenging task and high resolution (spatial and spectral) sensors are only few in number. As per IIRS, ISRO publication there is a chart containing 17 locations identified as methane hots spots..

B. CPCB Publication on “Status of Methane Emission from Municipal Solid Waste Disposal Sites” April, 2006

The Central Pollution Control Board (CPCB) in co-ordination with National Environmental Engineering Research · Institute (NEERI) and Indian Agricultural Research Institute (IARI), Delhi assessed the status of methane emissions from solid waste landfills for MSW disposal sites at Nagpur, Amravati and in Delhi were carried out. Static Flux Box chamber was used for monitoring LFG emission for both these sites.

Approach of the Study

The site was suitably divided into imaginary zones. LFG emission was monitored through flux box. Samples collected in the flux box were withdrawn for 0, 5, 10 & 15 minutes and immediately analysed in the laboratory using Gas Chromatograph with flame ionization detector. GC was standardized with pure methane standards and operating conditions were optimized for sample analysis. Methane flux expressed in mg.m2.sec was calculated by volume of the box divided by the area and multiplied by the rate of change of gas concentration with time.

Monitoring of LFG Emission

Methane concentration in the atmosphere is reported as 1 .7 parts per million by volume. Due to addition from anthropogenic activities, it is expected to result 17% enhanced climatic changes (IPCC 1 996)

LFG production potential in a landfill gives quantitative estimate only whereas emission of LFG gives flux and rate of emission from the surface of disposal site. Emission of LFG depends on various factors such as porosity in the waste and adjoining soil, practices adopted for waste disposal, methane oxidation potential at the surface, etc. In order to plan strategy for developing preventive measures and capture of LFG, the rate of LFG emission is essential. Various techniques exist in the literature for monitoring LFG emission from the surface of landfills to the atmosphere

Gas emission approaches can be categorized as direct or indirect techniques (Hwang, 1 985; Balfour et al.,1 987). Direct emission rate measurement technique utilizes vent sampling, measurement of velocity, passive sampling technique and flux chamber technique (Reinhart et al., 1 992). Indirect emission rate monitoring involves ambient air concentration measurements, and technique specific atmospheric dispersion model.

The flux chamber is used for direct measurement of gas emission from MSW landfills, surface impoundments, natural sediments, etc. Other methods including accumulation chambers, air borne infra-red thermography, external recirculation chamber, measurement inside the landfills are applied for measuring LFG emission

(Tregours et al., 1 999). Nozhevnikova, et al)

Estimation of Methane Potential

MSW consists of biodegradables, resistant and inert components. Under anaerobic conditions, biodegradable fraction generates methane, carbon dioxide, water, traces of hydrogen sulphide, ammonia and volatile organic compounds through biochemical reactions. Biodegradable organics consist mainly of celluloses and hemicelluloses. Carbohydrates (cellulose and hemicellulose) comprise 25-40 per cent of organic matter. Protein concentration normally varies between 3-9 per cent. Pectins, sugars and starches occur in very small concentration.

Celluloses, hemicelluloses and proteins mainly contribute for biogas generation. From the results of analysis for celluloses, hemicelluloses and proteins, the potential of methane yield is estimated. Studies carried out by Barlaz et al. (1 989) related with anaerobically decomposed refuse indicated that 373 litres of methane is produced on complete decomposition of carbohydrates. Similarly, protein on complete degradation, yields 51 7.4 litres of methane per kg of protein. Protein content is much less in MSW. However, considering physico-chemical binding of carbohydrate and protein components in organic matter, approximately 1 -30 parts of biodegradable fraction contribute for LFG generation (Barlaz1 989). This approach is adopted to estimate potential of biogas yield from cellulose, hemicellulose and protein content.

Based on the literature survey, approach for the study was planned which encompasses chemical analysis viz. cellulose, hemicellulose and protein contents for MSW samples for estimating the methane production potential

Findings

Investigations carried out for monitoring the LFG flux at Nagpur (Bhandewadi) was applied to the disposal site at Amravati for observing the suitability of the approach (static flux box method). Results of LFG analysis at disposal site at Nagpur is in the range 0.27 to 1.659 mg/m2s (1.83 Gg/yr to 11.2 Gg/yr) whereas at Amravati it is

0.02 to 0.88 mg/m2s (0.059 Gg/yr to 2.63 Gg/yr). Values were extrapolated for the year 2004 from the NATCOM data for National level and specifically for Maharashtra State (cities having population > 10 lakhs in plain areas). The values computed for Nagpur and Amravati landfill sites using default method are 1.141 mg/m2s (7.65 Gg/yr) and 0.761 mg/m2s (2.28 Gg/yr) respectively and those computed by Triangular method are 0.919 mg/m2s (6.16 Gg/yr) and 0.6024 mg/m2s (1.81 Gg/yr) respectively for Nagpur and Amravati. This indicates that the values obtained in the present study compare well with the earlier values obtained through NATCOM data

The results of the analysis of the LFG samples show that methane emission occurs at all the sampling points. It was revealed that in spite of unplanned and haphazard deposition of waste, emission is observed from the various zones throughout the disposal area. It was also observed that the potential for methane generation decreases from top to bottom in the landfills.

During the study, it was observed that there was a variation in methane emission from the landfills which might be due to variation in characteristics and composition of waste dumped at the landfill site, and non-availability of records of quantity of solid waste dumped earlier at each landfill from the year of start.

C. INTERNATIONAL PRACTICES OF METHANE MITIGATION AND REGULATIONS

International practices of methane mitigation

Country	Guidelines/directives to control methane emission	Weblink
EUROPIAN UNION(EU)	• The reduction of food waste promoted by Farm to Fork strategy will reduce methane emissions. • The Waste Framework Directive, 1975-22 establishes five-steps “waste hierarchy”: Waste prevention, re-use, recycling composting & energy recovery. • The EU Landfill Directive, 1999, introduces restrictions on landfilling of all waste suitable for recycling or other material or energy recovery, limits the share of municipal waste landfilled, and requires landfill operators to manage landfill gas by either using it for energy or flaring it. The directive was amended in 2018 to introduce an	• https://www.ccacoalition.org/sites/default/files/resources//European%20Union%20Methane%20Action%20Plan.pdf • https://www.eea.europa.eu/publications/methane-emissions-in-the-eu

	obligation to collect biodegradable waste separately by 2024 and set a new target of a maximum 10% landfilling of waste by 2035.	
SWEDEN	• The Swedish government and the EU have implemented a landfill tax and strong waste-sector goals, including a 50% organics target separation rate, which has led to a strong waste-diversion program • The government also developed a robust educational program on waste sorting for home and business.	https://rmi.org/top-strategies-to-cut-dangerous-methane-emissions-from-landfills/
GERMANY	• In 2005, landfilling untreated municipal solid waste was banned, avoiding methane formation in landfills. Waste is diverted from landfills, recycling has been expanded and so as the thermal or mechanical biological treatment of the municipal solid waste. • In 2013, the National Climate Initiative started promoting landfill aeration to further reduce methane emissions from landfills.	
USA	• In 2022, the Washington Legislature set a target to reduce the amount of organic materials going into landfills to 75% by 2030. The Legislature also directed to adopt regulations requiring municipal solid waste landfills to take steps to monitor and capture methane emissions. • Landfill owners and operators affected by the new rule will be required to install gas collection and control equipment, energy recovery devices, and/or treatment and processing systems to reduce their methane emissions. Collecting and burning methane gas, as it leaves a landfill limits its heat-trapping power, and the gas can be processed for electricity generation and vehicle fuel. • In addition, the rule requires quarterly monitoring of the landfill surface, quarterly monitoring of gas collection and control system equipment, and a timeline to ensure any methane leaks are quickly fixed. • In October 2009, EPA issued a rule (40 CFR Part 98) that requires the reporting of (GHG) emissions from large sources and suppliers in	https://ecology.wa.gov/about-us/who-we-are/news/2024-news-stories/new-rule-to-decrease-landfill-methane-emissions https://www.epa.gov/ghgreporting

	the United States, and is intended to collect accurate and timely emissions data to inform future policy decisions. • Annually, EPA issues an inventory report to present the U.S. government's. estimates on human-related GHG emissions and sinks for each year since 1990. Emissions from the waste sector as well as other sectors are presented in this inventory. • Current EPA regulations under the Clean Air Act require many larger landfills to collect and combust LFG. There are several compliance options, including flaring the gas or installing an LFG energy recovery system. Only LFG energy recovery gives communities and landfill owners the opportunity to reduce the costs associated with regulatory compliance by turning pollution into a valuable community resource	
China	In November 2023, China released its long-awaited methane mitigation action plan. Methane mitigation in Waste Sector such as : • Implement waste source reduction, and establish waste recycling systems to reach about 60% by 2025 • Promote the construction of organic waste treatment facilities, and further utilize methane from landfills • Mitigate methane emissions from wastewater treatment to reach 90% by 2025	https://ccci.berkeley.edu/sites/default/files/China%E2%80%99s%20Climate%20Action%20Brief.pdf
Argentina	Argentina Ministry of Environment and Sustainable Development has undertaken a number of methane reduction initiatives as a part of its actions under the Global Methane Pledge. • Two projects were launched to enhance the capacity of local authorities, farmers, and markets to establish sustainable organic waste diversion and processing systems.	https://www.ccacoalition.org/news/municipalities-markets-and-reducing-waste-methane-argentina

City wise information required for OA No. 247/2024

S.No.	Questions	Details
1.	State Name	
2.	City Name & Solid waste generated (TPD)	
3.	Number of Sites in the city **a.** Legacy waste dumpsites **(Annexure-A)** b. Sanitary Landfill **(Annexure-B)**	
4.	Location Details GPS locations and map	
5.	Total Coverage area of all the sites (Sq.km)	
6.	Total Quantity of waste disposed at the sites (Tonnes)	
7.	Number of dumpsites cleared (As on Date)	
8.	Number of dumpsites where biomining has commenced	
9.	Process adopted to remediate at each site	
10.	Timeline to process at each site	
11.	Final destination of the component	
12.	Details of Authorization and other permissions granted for operation of these sites and validity a. Number of landfill sites to which authorization/other permissions have been granted and details of the same b. Number of dumpsites to which authorization/other permissions have been granted and details of the same	
13.	Ambient Air Quality in and around the sites in the city along with GPS location of the monitoring stations a. Status of compliance with SWM rules, 2016, for each site/city	
14.	Fire incidents, if any, at sites in the city (please provide details and number of incidents reported and their location in last 5 years)	
15.	Details of methane monitoring, if any carried out at the site in the city (Please provide details	
16.	Methane detectors, if any, provided at the site in the city	
17.	Mitigation measures taken for reduction in organic emissions at the site in the city	

18.	Status of compliance of Directions w.r.t controlling fire at dumpsites , issued by CPCB in each city	
19	Overall Observations (Site wise and City Wise)	
20	Overall Recommendations (Site wise and City Wise)	

Annexure A

Format For Legacy waste Biomining

Serial No.			Item	Details
1			**General Information**	
	A		City & Location (Lat., Long) of Landfill	
	B		Name,Designation & Contact Details of Nodal Officers for Biomining	
	C		Stage of Biomining (Planned/Being Executed/Completed	
2			**Volume of Waste**	
	A		Has Contour Survey of site been Done (Y/N)	
	B		Length (Initial -M)	
	C		Width (Initial -M)	
	D		Height (Initial -M)	
	E		Total Volume (Cub.Meter)	
3			**Characteristics of Waste** **Inerts- Construction waste, wood glass etc (%)** **Compost – Organic (%)** **RDF- Plastic (%)** **Any other material (%)**	
4			**Leachate Characteristics**	
5			**Baseline Survey**	
	A		Ground Water Analysis	
	B		Soil Analysis	
	C		Quantity Of Waste Processed Per Day (TPD)	
6			**Process Flow sheet of Bio-Mining**	
7			**Stabilization of waste**	
	A		Type of biomining method Adopted (Tractor tiller,Trenchmethod; Cone Method;Windrow,Thin Layer Method)	
	B		Machinery used for Excavating dumpsite (Tractor Tiller Etc)	
	C		Machinery Used for preparing Windrows (JCB etc)	

	D		Are large objects removed prior to windrow preparation	
	E		Are Windrows Turned Every 4-5 Days	
	F		Duration of Stabilization	
	G		Bio-culture Used	
	H		Is End Product Stabilized (No Heat / Gas /leachate /Smell)	
	I		Is leachate Being Generated From the waste	
	J		If Yes,methodology for leachate Management Adopted	
8			**Processing Of Legacy Waste**	
			Machinery Used For processing of legacy waste	
	A		Screening	
		i	Trommel (Number & Capacity (TPD)	
		ii	Size of screens used (Mostly used 150 mm. 80 to 100 mm, 24 to 50mm, 1216 mmand 4-6)	
		iii	Vibrating Screen (No)	
		iv	Electromagnet (For separating ferrous metals)	
		v	Air Classifier (for separating light material from heavy organic)	
		vi	Disc/Star (No)	
	B		Handling	
		i	Loader (No.)	
		ii	Conveyor (No.)	
		iii	Fork Lift (No.)	
		iv	Categories in which the waste is segregated (Compost/Recyclables/RDF/C&D/Inerts etc.)	
		v	Quantity of items which is being generated in each category	
		vi	Quantity of items being utilized of different categories	
		vii	Documents supporting usage of different fractions (Bioearth/Recyclable/RDF/Other wastes)	

		viii	Analysis results of fine earth	
		ix	Frequency of testing of bio-earth	
9			**Miscellaneous**	
		A	Have fires being reported at the site	
		B	Methodology to tackle fires	
		C	Status of compliance of Directions w.r.t controlling fire at dumpsites , issued by CPCB	
		D	Is fresh waste being dumped at the site	
		E	Percentage land recovered so far	
		F	Is third party audit of biomining being done	
10			**Ambient air quality monitoring**	
		A	Landfill Gas control System ,	
		B	Methane gas measurement and mitigation measures adopted	
		C	Use of Landfill Gas	
		D	Ambient Air quality monitoring in & around the site along with GPS location	
		E	Compliance with standards	
11			Detailed observations:	
12			Recommendations	

Annexure B

Format for Sanitary Landfill

SN.		Questions	Details
1		**General information**	
	i	Name of State	
	ii	City & Location (Lat., Long) and map of Landfill	
	iii	Name, Designation & Contact Details of Nodal Officers for	
	iv	Coverage area of the site	
	v	Quantity of the waste disposed at the site	
A		**Site selection**	
	i	Landfill site initiated in the year	
	ii	Distance of Landfill site as per (vii) of Schedule 1	
	iii	Buffer zone around landfill /processing site	
	iv	Provisions for Disposal of Bio Medical, Hazardous and E Waste	
	v	Temporary storage facility at landfill site	
B		**Development of facilities at sanitary landfill**	
	i	Fencing /hedging of sites with gate to monitor incoming vehicles	
	ii	Paved/concretized internal road	
	iii	Record keeping for waste received, processed and disposed at the site , with office facility, shelter for equipment's & machinery	
	iv	Provision of weigh bridge (Manual or computerized)	
	v	Fire protection equipment	
	vi	Drinking water and Sanitary facilities for workers	
	vii	Safety provisions including health inspection of workers at landfill site	
C.		**Landfill operations and Closure**	
	i	Compaction of waste /alternative measures	
	ii	Measures taken for rainy season	
	iii	Final cover type	

D		**For Pollution prevention**	
	i	Storm water drains to avoid mixing of surface runoff with leachate	
	ii	Non permeable lining system at the base and wall of waste disposal area	
	iii	Provision for management of Leachate , collection and treatment system , details	
	iv	Arrangement to prevent leachate runoff from landfill area entering any water body	
E		**Water Quality monitoring**	
	i	Groundwater analysis	
	ii	Use of groundwater in and around landfill (irrigation & Drinking) purpose	
F		**Ambient air quality monitoring**	
	i	Landfill Gas control System ,	
	ii	Methane gas measurement/mitigation measures adopted	
	iii	Use of Landfill Gas	
	iv	Ambient Air quality monitoring in & around the site along with GPS location	
	v	Compliance with standards	
	vii	Fire incident, if any at the site	
	vii	Status of compliance of Directions w.r.t controlling fire at dumpsites , issued by CPCB	

Additional information to be provided (O.A. No. 247/2024)

Citywise Details							
S.No.	**Items**	**Details**					
1	Quantity of waste generated in the city						
2	Quantity of waste collected						
3	Quantity of waste segregated						
4	Quantity of waste processed with method of processing	Composting (Quantity in %)	Biomethanation (Quantity in %)	WtoE (Quantity in %)	MRF (Quantity in %)	Landfilling (%)	Any other (%)
5	% Gap in SW generation Vs SW processed						
6	How is unprocessed solid waste (SW) disposed of?						
Sanitary Landfill Site Details (Site wise)							
7	Status of CTO for SLF with Validity						
8	Authorization status of SLF with validity						
Details of dumpsite & SLF (Site wise)							
9	Whether methane gas detector has been installed & temperature at windrow is being monitored.(Site wise)						
10	Whether treated leachate/water is being sprayed during high temperature.(Site wise)						
11	Whether CCTV cameras have been installed at the site & patrolling, mock drills, and safety audits are being conducted regularly.(Site wise)						
12	Whether arrangement of fire extinguishing has been provided.(Site wise)						
13	Weather health and safety measures for workers have been provided.(Site wise)						
14	Whether an onsite/offsite emergency plan there.(Site wise)						

Format for Cities having O&G sites : Onshore

S.No.	Particulars	Remarks
1.	State Name	
2.	City Name	
3.	Name & Address of the O & G Unit with contact details	
4.	Lat, Long of site	
5.	CTO/CTE/Authorization given by SPCB : Details with validity status	
6.	Methane gas generation (Specify the latest quantity) Conversion to production (% Utilization) Balance- % Disposed to the environment 1. Flaring 2. Other purposes	
7.	Mitigation measures taken for reduction in organic emission including methane	
8.	Methane detector installed (Yes/No)	
9.	Fire incident at site in last 5 years (If yes , mention the year & reason for the fire)	
10.	Emergency plan for fire prevention (Onsite & Offsite with details)	
11.	OCEMS installed & connected to CPCB/SPCB Server (Yes/No)	
12.	Ambient air quality monitoring with standards (Recent data & Compliance of the parameters)	
13.	Any other information	

Annexure-VIII

CITY & SITE WISE COMPILED INFORMATION

(A) CITY WISE DETAILS OF DUMPSITES, SLFS AND O& G SITES

The city wise compiled information for 08 sites in 07 cities in three states viz Gujarat, Maharashtra & Rajasthan w.r..t dumpsite, and Sanitary Landfill sites. In three cities of Assam viz Nazira, Dibrugarh and Tinsukia , there is no solid waste dumpsite & SLF sites identified by IIRS, ISRO study as methane emission hot spot . The status of Oil and Gas sites in Assam & Rajasthan for 5 cities (05 O& G sites) are mentioned in further section. The detailed observations of Solid waste dumpsites and SLF in cities of Gujarat, Maharashtra and Rajasthan are given below:

7.1 AHMEDABAD & SURAT IN GUJARAT

There are two cities in Gujarat where methane hotspot areas have been identified by IIRS, ISRO. These cities are Surat & Ahmedabad. Details are given below:

1. There are two dumpsites (one in Surat as Khajod & another at Ahmedabad as Pirana) .
2. Bio mining at Pirana dumpsite in Ahmedabad has been completed & capping has been done at Khajod in Surat .
3 Fresh waste disposal is not done at Surat as it is capped.
3. Provision of gas collection is done at Khajod in closed landfill cells.
4. Leachate is collected in tankers at Khajod site and treated in leachate treatment unit
5. Methane detectors not in place at Khajod

7.2 CENTRAL MUMBAI, KALYAN- DOMBIVLI & PUNE IN MAHARASHTRA

There are 3 cities in Maharashtra as methane hotspots identified by IIRS, ISRO Dehradun which are Central Mumbai, Kalyan ,Dombiveli and Pune . The details are given below:

1. There are 02 dumpsites (Deonar and Adharwadi) & 02 sanitary landfills (Kanjurmarg and Pimpri –Chinchwad) in these three cities of Maharashtra.
2. Bio mining at Adharwadi –Kalyan Dombiveli dumpsites has been commenced whereas at one dumpsite (Deonar) it has not been initiated as yet.

3. Fire incidents are not reported during last five years at both the dumpsites.
4. Ambient air quality is monitored at both the dumpsites.
5. Fresh waste is not disposed at Adharwadi while disposed at Deonar dumpsite
6. 02 Sanitary landfill sites are established i.e one at Kanjurmarg (after 2016) & another at Pimpri-Chinchwad (prior to 2016)
7. Authorization granted by SPCB for both the SLFs sites and validity exists till date.
8. Fire incidents have been reported once at Pimpri-Chinchwad SLF, however reason not ascertained. Ambient air quality is being monitored at both SLF sites however as per latest reports PM10 is exceeding at both the sites.
9. The provision for leachate collection and treatment is available at both SLF sites in Maharashtra.
10. Gas collection system is in place at Kanjurmarg no tat Pimpri-Chinchwad.

7.3 CHIRAWA & TARANAGAR IN RAJASTHAN

There are two cities in Rajasthan where methane hotspots have been identified by IIRS, ISRO. These cities are Chirawa & , Taranagar, Details are given below**:**

1. There are two dumpsites (one in Chirawa and another in Taranagar)
2. There is a 44% gap in solid waste management in Chirawa & 100% gap in Taranagar. Fresh waste is being dumped at both dumpsites i.e Chirawa and Taranagar.
3. Biomining has not been initiated at Taranagar .
4. Bio mining has been started at Baghania, Johar dumpsite in Chirawa on May 2024 & proposed to be completed by July 2025.Seven small fire incidents have been reported during last 5 years due to flammable material at Chirawa dumpsite.
5. Ambient air quality monitoring is not being carried out at both dumpsites of Chirawa and Taranagar.
6. On-site monitoring of methane emissions is not done at dumpsites of both cities.

OIL & GAS SITES IN 5 CITIES OF ASSAM & RAJASTHAN

1. There are 3 O&G sites in Assam and 2 in Rajasthan.
2. CTO/CTE has been granted by SPCBs of Assam and Rajasthan to all 5 Oil and Gas sites and validity exits.
3. The natural gas produced on the site contains varying percentage of methane content. At O & G sites of Assam viz. Dibrugarh & Tinsukia , 89% methane content is found out of which 0.34% & 1.12 % is flared respectively , at Nazira - 7.13% methane is flared in the environment .
4. At O&G sites of Rajasthan viz. Jaisalmer, & Barmer , 85% & 16% methane content is found respectively, with utilization of entire methane content at Jaisalmer and 100% flaring at Barmer .
5. No fire incidents have been reported in last 5 years at any of the sites except at Nazira site, Assam due to gasket failure.
6. Air quality monitoring at the sites shows that the ambient air quality is within the prescribed limits, except at Barmer, Rajasthan, where the PM10 concentration exceeds the acceptable levels of National Ambient Air Quality Standards (NAAQS).

(B) SITE WISE COMPILED INFORMATION IN 12 CITIES

Assam:

There are 3 cities in Assam viz. methane hotspot area is identified by IIRS, ISRO Dehradun which are Dibrugarh, Tinsukia and Nazira. The details are given below:

A. Solid Waste Management Status		
S.No.	**Particulars**	**Details**
1	Name of City	Tinsukia
2	Population of City	1.25 Lakhs
3	Quantity of Waste Generated	70 TPD
5	Quantity of Waste Collected	60-65 TPD
6	Quantity of waste segregated	2-3 TPD
7	Quantity of waste processed	4%
8	% Gap in solid waste management	80%
B. Status of legacy waste Bio mining		
1	No, of Dumpsites	01, Tinsukia (Lat 27.45, Long 95.36)
2	Age & Height of dumpsites	Age is 31 years & height is 6.5 m (Before Bio mining)
3	Volume of waste accumulated at the dumpsite	14,500 Cum (Before Bio mining)
4	Bio mining Started/ Completed	Completed (Year 2024)
5	Area cleared & use of reclaimed land	Site restoration is being carried out
6	Quantity of waste processed per day	NA
7	Proposed plan for completion of biomining	NA
8	Leachate management	Leachate is generated from the waste but there is no leachate control measures adopted
9	No. of Fire incidents & reasons thereof	No fire incidents occurred in last 5 years
10	Ambient air quality monitoring	Air quality not monitored
11	Methane gas measurement and mitigation measures adopted	No provision
C. Status of sanitary landfill		
1	No. of SLF	No SLF in Tinsukia

NA – Not applicable

Observation:

- Out of 70 TPD, only 2-3 TPD waste is being segregated in Tinsukia
- There is 80% gap between solid waste generation and solid waste disposal.
- Biomining is completed at the legacy waste dumpsite through the process of bioremediation and windrow.
- The reclamation of land is ongoing.
- There is no provision of leachate collection and treatment system.
- There are no fire incidents reported during last 5 years.
- There is no ambient air quality monitoring done around the site.
- There is no methane gas measurement and mitigation measures adopted.
- There is no SLF in Tinsukia.

A. Solid Waste Management Status		
S.No.	**Particulars**	**Details**
1	Name of City	Dibrugarh
2	Population of City	1.5 Lakhs
3	Quantity of Waste Generated	100 TPD
5	Quantity of Waste Collected	90 TPD
6	Quantity of waste segregated	90 TPD
7	Quantity of waste processed	NP
8	% Gap in solid waste management	NIL
B. Status of legacy waste Biomining		
1	No, of Dumpsites	01, Lekai Ghoramara (Lat 27.413, Long 94.925)
2	Age & Height of dumpsites	Age is 2 years & height is Not Provided
3	Volume of waste accumulated at the dumpsite	50,000 MT
4	Biomining Started/ Completed	Started (Year 2022)
5	Area cleared & use of reclaimed land	NA
6	Quantity of waste processed per day	NP
7	Proposed plan for completion of biomining	Within 6 months
8	Leachate management	No Leachate is being generated from the waste
9	No. of Fire incidents & reasons thereof	No such fire incidents has occurred in last 5 years
10	Ambient air quality monitoring	Air quality not monitored
11	Methane gas measurement and mitigation measures adopted	No provision
C. Status of sanitary landfill Site (SLF)		
1	No. of SLF	01, Lekai Ghoramara (Lat 27.412, Long 94.925)

2	Operation year of SLF (Prior or after 2016.	After 2016
3	Quantity of waste disposed at Site	NP
4	CTE/CTO status	NA
5	Details of authorization under SWM Rules, 2016	NP
6	Provision of gas collection system	NP
7	Provision of leachate collection & treatment	Yes
8	Ambient air quality monitoring	No

Observation:

- 100% waste is being segregated in the Dibrugarh.
- The biomining at the dumpsite has been initiated through the process of windrow. 100 TPD fresh waste processing plant has been commissioned and fully operational.
- There is no fire incident reported during last 5 years.
- Ambient air quality monitoring is not being carried out at the dumpsite.
- On-site monitoring of methane emissions is also lacking.
- The operation year of SLF at Lekai Ghoramara was after 2016
- The provision of leachate collection and treatment was provided at SLF. The SLF is converted to dumpsite. It is also informed by the Regional Office, Dibugarh , Assam that the solid waste management project at Lekai was set up by Dibrugarh Municipal Board during 2021 with facility to dispose Solid Waste of 70 TPD capacity with Integrated composting and Sanitary Landfill facility, however due to various operational reasons it was observed that sanitary landfill facility was used as dumping site since September, 2022. At present bio mining is under progress at that site to restore Sanitary landfill facility.

A. Solid Waste Management Status			
S.No.	**Particulars**	**Details**	
1	Name of City	**Nazira (New site)**	**Simaluguri (Closed site)**
2	Population of City	13,300	8286
3	Quantity of Waste Generated	3.1 TPD	2.1 TPD
5	Quantity of Waste Collected	2.7 TPD	1.7 TPD
6	Quantity of waste segregated	0.7 TPD	0.6 TPD
7	Quantity of waste processed	25 %	~25-30%
8	% Gap in solid waste management	35%	75%

B. Status of legacy waste Biomining			
1	No, of Dumpsites	01 Nazira , Lat Long (Lat 26.92 Long 94.741)	01, Tetaliguri master chuk (Lat 26.919, Long 94.740)
2	Age & Height of dumpsites	Age is 5 months & height is 2 m	10 years , 2 meter
3	Volume of waste accumulated at the dumpsite	300 m^3	2520 Tons (approx.)
4	Biomining Started/ Completed	No	Site Non functional
5	Area cleared & use of reclaimed land	NA	NA
6	Quantity of waste processed per day	NP	NP
7	Proposed plan for completion of biomining	NP	NP
8	Leachate management	No leachate control measures adopted.	NP
9	No. of Fire incidents & reasons thereof	NIL	02 in last five years
10	Ambient air quality monitoring	Air quality not monitored	NP
11	Methane gas measurement and mitigation measures adopted	No provision	Not carried out
C. Status of sanitary landfill			
1	No. of SLF	No SLF in Nazira	

Observation:

- There are two dumpsites one at viz Nazira(New site) and another at Simaluguri (Old site) . The old site has been nonfunctional since 31March, 2024 due to public complaints and new site is functional at Nazira .
- Out of 2.7 TPD only 0.7 TPD waste is being segregated in Nazira .
- There is approx. 35% gap between solid waste generation and solid waste disposal.
- Bio mining has not yet initiated at the Simaluguri legacy waste dumpsite.
- No provision of leachate collection and control system at both dumpsites.
- Fire incidents have been reported twice at Simaluguri site, reason has not ascertained.
- Ambient air quality monitoring is not being carried out at dumpsite
- On-site monitoring of methane emissions is also lacking.
- There is no SLF in Nazira.

Gujarat:

There are two cities in Gujarat where methane hotspot areas have been identified by IIRS, ISRO Dehradun. These cities are Surat & Ahmedabad. Details are given below:

A. Solid Waste Management Status		
S.No.	**Particulars**	**Details**
1	Name of City	**Surat**
2	Population of City	44,67,797 (As per 2011 Census)
3	Quantity of Waste Generated	2450 TPD
5	Quantity of Waste Collected	2450 TPD
6	Quantity of waste segregated	2450 TPD
7	Quantity of waste processed	Approx. 94%
8	% Gap in Solid waste management	Approx. 6% (Generation Vs. Processed)
B. Status of legacy waste Biomining		
1	No, of Dumpsites	02 , namely Bhatar dumpsite (Lat. 21.159, Long. 72.819) and Khajod dumpsite (Lat. 21.100, Long. 72.803
2	Age & Height of dumpsites	Age is 20-25 years
3	Volume of waste accumulated at the dumpsite	1,50,000 Cum at Bhatar (Prior to biomining) & 35,00,000 Cum at Khajod
4	Biomining Started/ Completed	At bhatar biomining has been completed & at Khajod capping has been undertaken prior to 2017-18
5	Area cleared & use of reclaimed land	70,000 sq M at Bhatar, an ecological park has been developed on the reclaimed land
6	Quantity of waste processed per day	NA
7	proposed plan for completion of biomining	Completed
8	Leachate management	Leachate collected in Tankers and treated in Leachate Treatment Unit
9	No. of Fire incidents & reasons thereof	No
10	Ambient air quality monitoring	No
11	Methane gas measurement and mitigation measures adopted	No (Gas vent provided in scientifically closed area)

C. Status of sanitary landfill		
1	No. of SLF	01. Khajod (Lat. 21.1004, Long. 72.8032)
2	Operation year of SLF (Prior or after 2016.	2004-2005 (prior to 2016)
3	Quantity of waste disposed at Site	10 Lakh M.T.
4	CTE/CTO status	NP
5	Details of authorization under SWM Rules, 2016	Expired & renewal is under consideration
6	Provision of gas collection system	Yes, in closed sanitary landfill cell
7	Provision of leachate collection & treatment	Provisions for leachate collection and treatment, along with a non-permeable lining system at the base and sides of the sanitary landfill site, have been implemented. Leachate is collected in leachate collection wells and subsequently treated in the nearby sewage treatment plant (STP). Landfill gas control system has not been deployed.
8	Ambient air quality monitoring	At Khajod, as per ambient air quality report dated April 25, 2024, PM2.5, PM10, SO2, NOx & SPM are within prescribed limit

Observation:

- 94% of fresh waste is being processed in Surat.
- Information w.r.t. completion year of bio mining at Bhatar, CTO status & validity, Authorization validity of SLF at Khajod has not been provided.
- Bio mining work at Bhatar dumpsites has been completed & capping has been under taken at Khajod prior to NGT guideline, in year 2017-2018.
- Fire incidents have been reported at Khajod SLF, twice. Fire erupted due to concentration of sunlight.
- SLF at Khajod has been initiated before 2016.
- Authorization of SLF at Khajod is expired & renewal application is pending at GPCB.
- Ambient air quality is monitored at SLF Khajod . Latest data during 2024 indicates compliance of criteria parameters of NAAQS.

A. Solid Waste Management Status		
S.No.	**Particulars**	**Details**
1	Name of City	**Ahmedabad**
2	Population of City	75 Lakh
3	Quantity of Waste Generated	3495 TPD
5	Quantity of Waste Collected	3495 TPD

6	Quantity of waste segregated	3495 TPD
7	Quantity of waste processed	100% (Generation Vs. Processed)
8	% Gap in Solid waste management	Nil
B. Status of legacy waste Biomining		
1	No, of Dumpsites	1. Pirana (22.976711, 72.563286)
2	Age & Height of dumpsites	Age is 44 approx. years & Avg. height is 50 m (Prior to biomining)
3	Volume of waste accumulated at the dumpsite	126.32 lakh tonnes (Prior to biomining)
4	Biomining Started/ Completed	Completed in Dec 2023
5	Area cleared & use of reclaimed land	45 Acres of land cleared; an ecological park has been developed on the reclaimed land.
6	Quantity of waste processed per day	40,000 TPD (Biomining completed)
7	proposed plan for completion of biomining	NA
8	Leachate management	Leachate is collected through leachate channel and treated along with STP (Prior to biomining) water
9	No. of Fire incidents & reasons thereof	No big/considerable scale fire reported
10	Ambient air quality monitoring	No (Prior to biomining)
11	Methane gas measurement and mitigation measures adopted	No (Prior to biomining)
C. Status of Sanitary landfill Site		
1	No. of SLF	1. Gyaspur SLF (Ahmedabad (22.960629, 72.546685)
2	Operation year of SLF (Prior or after 2016.	2011

3	Quantity of waste disposed at Site	11 Lakh M.T.
4	CTE/CTO status	Valid till July 2024
5	Details of authorization under SWM Rules, 2016	Authorization obtained (valid till July 2024)
6	Provision of gas collection system	No
7	Provision of leachate collection & treatment	leachate is collected in leachate collection well which is then treated in the nearby STP.
8	Ambient air quality monitoring	Air quality monitored

Observations:

- 100% of fresh waste is being processed in Ahmedabad.
- Biomining work at Pirana dumpsite has been completed in Dec 2023.
- Fire incidents have not been reported during last 5 years.
- SLF has been initiated before 2016.
- The Gyaspur Sanitary Landfill (SLF) lacks provisions for a gas collection system and methane detectors.
- Ambient air quality monitoring is being conducted but the data showing compliance with air quality standards has not been provided.

Maharashtra

There are 3 cities in Maharashtra as methane hotspots identified by IIRS, ISRO Dehradun which are Central Mumbai, Kalyan Dombivli & Pune. The details are given below:

A. Solid Waste Management Status		
S.No.	**Particulars**	**Details**
1	Name of City	Central Mumbai
2	Population of City	1.24 Crores
3	Quantity of Waste Generated	6400 TPD
5	Quantity of Waste Collected	6360 TPD
6	Quantity of waste segregated	6360 TPD
7	Quantity of waste processed	5500 TPD

8	% Gap in solid waste management	14 % (Generation Vs processing)
B. Status of legacy waste Biomining		
1	No, of Dumpsites	02, Deonar (Lat : 19.05, Long 72.08) Mulund (Lat : 19.17, Long : 72.97)
2	Age & Height of dumpsites	Deonar : Age 103 & height is 40 m Mulund : Age is 60 years & height is 52 m
3	Volume of waste accumulated at the dumpsite	Deonar : 200 Lakh MT Mulund : 70 lakh MT
4	Biomining Started/ Completed	Deonar : Not started Mulund : Started (Year 2019)
5	Area cleared & use of reclaimed land	NP
6	Quantity of waste processed per day	Mulund : 7000-8000 TPD
7	Proposed plan for completion of biomining	NP
8	Leachate management	NA
9	No. of Fire incidents & reasons thereof	Not recorded
10	Ambient air quality monitoring	Air quality monitored
11	Methane gas measurement and mitigation measures adopted	No provision
C. Status of sanitary landfill Site (SLF)		
1	No. of SLF	1, kanjurmarg (Lat 19.12, Long 72.95)
2	Operation year of SLF (Prior or after 2016)	After 2016
3	Quantity of waste disposed at Site	2.03 Lakh MT
4	CTE/CTO status	
5	Details of authorization under SWM Rules, 2016	MPCB Authorization dated 23.08.2022, validity upto 2026
6	Provision of gas collection system	Methane gas measured, collected and used for generating electricity and rest is flared.
7	Provision of leachate collection & treatment	Yes
8	Ambient air quality monitoring	Yes

Observation:

- There is a 14% gap between solid waste generation and solid waste processing.
- The biomining has started at Mulund dumpsite whereas at deonar dumpsite biomining has not started yet.
- No fire incidents have been reported during last 5 years at both the dumpsites.
- There is no leachate management provision at any of the dumpsites.
- Ambient air quality monitoring is being carried out at both the dumpsite.
- On-site monitoring of methane emissions is also lacking.
- The SLF at kanjumarg is operational after 2016
- CTO/CTE for operation of SLF is granted & validity of authorization is upto 2026.
- The methane gas at SLF is collected, used for generating electricity and rest is flared.
- There is no leachate management provision at any of the two dumpsites.
- Ambient air quality at the site is not being monitored at both dumpsites. The reports indicating compliance of air quality parameters measured at SLF has not been provided for SLF Kanjurmarg.

A. Solid Waste Management Status		
S.No.	**Particulars**	**Details**
1	Name of City	Kalyan Dombivli
2	Population of City	20 Lakhs
3	Quantity of Waste Generated	650 TPD
5	Quantity of Waste Collected	650 TPD
6	Quantity of waste segregated	650 TPD
7	Quantity of waste processed	650 TPD
8	% Gap in solid waste management	NIL(Generation Vs processing)
B. Status of legacy waste Biomining		
1	No, of Dumpsites	01, Aadharwadi Dumpsite (Lat : 19.265, Long : 73.104)
2	Age & Height of dumpsites	42 years & height is 15 m
3	Volume of waste accumulated at the dumpsite	16 Lakh cum
4	Biomining Started/ Completed	Started (Year 2024)
5	Area cleared & use of reclaimed land	1.5 ha

6	Quantity of waste processed per day	1814 TPD
7	Proposed plan for completion of biomining	NP
8	Leachate management	No Leachate generated
9	No. of Fire incidents & reasons thereof	Not recorded since last 5 years
10	Ambient air quality monitoring	Air quality monitored
11	Methane gas measurement and mitigation measures adopted	No provision
C. Status of sanitary landfill Site (SLF)		
1	No. of SLF	02, Umbarde SLF (Lat : 19.27, Long : 73.12) Barave SLF (Lat : 19.26, Long : 73.15)
2	Operation year of SLF (Prior or after 2016.	Umbarde : after 2016 Barave : after 2016
3	Quantity of waste disposed at Site	Umbarde : 45246 MT Barave : 14295 MT
4	CTE/CTO status	Not obtained
5	Details of authorization under SWM Rules, 2016	Umbarde: Validity upto Dec 2024 Barave: Validity upto Dec 2023 (applied for renewal)
6	Provision of gas collection system	At Umbarde
7	Provision of leachate collection & treatment	No Leachate generated
8	Ambient air quality monitoring	Yes

Observation:

- There is no gap between solid waste generation and solid waste disposal at Kalyan Dombivili.
- The biomining has started at Aadharwadi dumpsite during 2024.
- No fire incident reported during last 5 years.
- Ambient air quality is being monitored at Adharvadi dumpsite and both SLFs. However, reports/ data are not provided regarding compliance of Criteria parameters with NAAQS.
- Provisions for on-site monitoring gas collection system is available at Umbarde , and not available at Barave .Information on methane measurement at both SLF is not provided
- The SLF of Umbarde and Barave site is operational after 2016
- Authorization is granted for the operation of SLF Umbarde site with validity upto Dec 2024 and Barave SLF site is presently operational without valid authorization.

A. Solid Waste Management Status		
S.No.	**Particulars**	**Details**
1	Name of City	**Pune**
2	Population of City	55 Lakhs
3	Quantity of Waste Generated	2300 TPD
5	Quantity of Waste Collected	2300 TPD
6	Quantity of waste segregated	2300 TPD
7	Quantity of waste processed	2300 TPD
8	% Gap in Solid waste management	NIL(Generation Vs processing)
B. Status of legacy waste Biomining		
1	No, of Dumpsites	01, Uruli Devachi Dumpsite (Lat : 18.4702841 ,Long: 73.9525822)
2	Age & Height of dumpsites	30 years & 12m
3	Volume of waste accumulated at the dumpsite	33 Lakh MT
4	Biomining Started/ Completed	Started (Year 2020)
5	Area cleared & use of reclaimed land	20 acre & reclaimed land not used yet
6	Quantity of waste processed per day	2000 TPD
7	Proposed plan for completion of biomining	NP
8	Leachate management	Leachate treatment plant established
9	No. of Fire incidents & reasons thereof	Not recorded Since last 5 years
10	Ambient air quality monitoring	Air quality monitored Quarterly
11	Methane gas measurement and mitigation measures adopted	No
C. Status of sanitary landfill Site (SLF)		
1	No. of SLF	02, Uruli Devachi Site (Lat : 18.4702841 Long : 73.9525822) Pimpri-Chinchwad
2	Operation year of SLF (Prior or after 2016.	Uruli Devachi – After 2016 Pimpri-Chinchwad- Prior to 2016
3	Quantity of waste disposed at Site	Uruli- 300 TPD Pimpri-Chinchwad-110 TPD

4	CTE/CTO status	Uruli- Applied
5	Details of authorization under SWM Rules, 2016	Uruli- Validity upto 2026 Pimpri-Chinchwad- Validity upto 2024
6	Provision of gas collection system	No
7	Provision of leachate collection & treatment	Uruli- Yes Pimpri-Chinchwad- Yes, Separate system to collect and convey Leachate treatment plant is available
8	Ambient air quality monitoring	Uruli : Yes Pimpri-Chinchwad -Yes

Observation:

- There is no gap between solid waste generation and solid waste disposal.
- The bio mining has started in year 2020 at the Uruli Devachi legacy waste dumpsite.
- Leachate treatment plant established on the legacy site.
- There is no fire incident reported during last 5 years.
- On-site monitoring of methane emissions is also lacking at both Legacy waste dumpsite as well as SLF.
- The SLF at Uruli is operational after 2016 and SLF at Pimpri-Chinchwad is operational prior to 2016.
- CTO/CTE for SLF Uruli and Pimpri –Chinchwad is not there. Validity of authorization fo SLF Uruli at upto 2026 and Pimpri is upto 2024 .
- There is no provision of gas collection system at both the SLF sites.
- Ambient air quality monitoring is being done at both the legacy waste site and SLFs. However, as per latest reports/data provided the PM10 value exceeds the limit as per NAAQS.

Rajasthan:

There are four cities in Rajasthan where methane hotspots have been identified by IIRS, ISRO Dehradun. These cities are Chirawa, Taranagar, Jaisalmer and Barmer. Details are given below:

A. Solid Waste Management Status		
S.No.	**Particulars**	**Details**
1	Name of City	Chirawa, Jhunjhunu, Rajasthan
2	Population of City	43953 (As per 2011 census)
3	Quantity of Waste Generated	18 TPD
5	Quantity of Waste Collected	16 TPD
6	Quantity of waste segregated	9 TPD

7	Quantity of waste processed	56% (Collection Vs Segregation)
8	% Gap in Solid waste management	44%
B. Status of legacy waste Biomining		
1	No, of Dumpsites	01, Baghania, Johar (28.261, 75.639)
2	Age & Height of dumpsites	Age is 39 years & Height 20 Feet (approx.)
3	Volume of waste accumulated at the dumpsite	81118 Cum (68,951 tonnes)
4	Biomining Started/ Completed	Biomining started on May 2024
5	Area cleared & use of reclaimed land	10,000 Cum cleared
6	Quantity of waste processed per day	900 TPD
7	Proposed plan for completion of biomining	July 2025
8	Leachate management	No Leachate management
9	No. of Fire incidents & reasons thereof	7 small fire incidents reported due to flammable material
10	Ambient air quality monitoring	Air quality not monitored
11	Methane gas measurement and mitigation measures adopted	No
C. Status of sanitary landfill		
1	No. of SLF	No Sanitary Landfill Site (SLF) at Chirawa

Observation:

- There is a 44% gap in solid waste management in Chirawa.
- Biomining has been started at Baghania, Johar dumpsite on May 2024 & proposed to be completed by July 2025.
- Seven small fire incidents have been reported during last 5 years due to flammable material
- Fresh waste is being dumped at dumpsite.
- Remediation of legacy waste at Baghania, dumpsite, Chirawa has been started but all necessary process including conducting a baseline survey, ensuring waste stabilization and implementing bio-culture and aeration before processing the waste is not being followed.
- Ambient air quality monitoring is not being carried out at dumpsite.
- On-site monitoring of methane emissions is not done.
- There is no SLF at Chirawa.

A. Solid Waste Management Status		
S.No.	**Particulars**	**Details**
1	Name of City	**Taranagar, Churu, Rajasthan**
2	Population of City (As per 2011 Census)	32640
3	Quantity of Waste Generated	11 TPD
5	Quantity of Waste Collected	9 TPD
6	Quantity of waste segregated	-
7	Quantity of waste processed	Nil
8	% Gap in Solid waste management	100% (All fresh waste is being dumped)
B. Status of legacy waste Biomining		
1	No, of Dumpsites	01, Alasla road, Bhootiya village (28.665, 75.024)
2	Age & Height of dumpsites	20 years & Average height is 6 m
3	Volume of waste accumulated at the dumpsite	12045 Cum (10,630 Tonnes)
4	Biomining Started/ Completed	Proposed to be started after August ,2024
5	Area cleared & use of reclaimed land	NA
6	Quantity of waste processed per day	NA
7	proposed plan for completion of biomining	NA
8	Leachate management	Not done
9	No. of Fire incidents & reasons thereof	None
10	Ambient air quality monitoring	No
11	Methane gas measurement and mitigation measures adopted	No
C. Status of sanitary landfill		
1	No. of SLF	No Sanitary Landfill Site (SLF) at Taranagar

Observation:

1. There is no processing of solid waste in Taranagar and 100% fresh waste is being dumped at the dumpsite.

2. Biomining proposed to be started after August 2024.
3. Fire incidents have not been reported during last 5 years.
4. Ambient air quality monitoring is not being carried out at dumpsite.
5. On-site monitoring of methane emissions is not done.
6. There is no SLF at Taranagar.

A. Solid Waste Management Status		
S.No.	**Particulars**	**Details**
1	Name of City	Barmer, Rajasthan
2	Population of City	96225 (As per 2011 census)
3	Quantity of Waste Generated	50 TPD
5	Quantity of Waste Collected	45-50 TPD
6	Quantity of waste segregated	20 TPD
7	Quantity of waste processed	Approx. 40%
8	% Gap in Solid waste management	Approx. 60% (Collection Vs Segregation)
B. Status of legacy waste Biomining		
1	No, of Dumpsites	01. Gehu Road Dumping site (25.778, 71.348)
2	Age & Height of dumpsites	Age is 20 years
3	Volume of waste accumulated at the dumpsite	105954 Cum
4	Biomining Started/ Completed	Biomining has been initiated on March 2022
5	Area cleared & use of reclaimed land	50 % land recovered
6	Quantity of waste processed per day	NP
7	Proposed plan for completion of biomining	October 2024
8	Leachate management	No
9	No. of Fire incidents & reasons thereof	None
10	Ambient air quality monitoring	Yes (PM10 is exceeding the limit of NAQQS)
11	Methane gas measurement and mitigation measures adopted	No
C. Status of sanitary landfill		
1	No. of SLF	No Sanitary Landfill Site (SLF)at Barmer

Observation:

1. There is a 60% gap in solid waste management in Barmer.
2. Biomining has been initiated at Barmer dumpsite during May 2022 & proposed to be completed by October, 2024.

3. Fire incidents have not been reported during last 5 years.
4. Quantity of legacy waste processed per day has not been provided.
5. Provision of leachate management is not there.
6. Ambient air quality monitoring is carried out at dumpsite.
7. On-site monitoring of methane emissions is not done.
8. There is no SLF at Barmer.

A. Solid Waste Management Status		
S.No.	**Particulars**	**Details**
1	Name of City	Jaisalmer
2	Population of City (As per 2011 Census)	65471
3	Quantity of Waste Generated	30 TPD
5	Quantity of Waste Collected	30 TPD
6	Quantity of waste segregated	18 TPD
7	Quantity of waste processed	35%
8	% Gap in Solid waste management	65% (Generation Vs. Processed)
B. Status of legacy waste Biomining		
1	No, of Dumpsites	01, Badabagh, Jaislmer (Lat. 26.9742, Long. 70.8761)
2	Age & Height of dumpsites	Age is 16 years & Average height is 2.9 m
3	Volume of waste accumulated at the dumpsite	72692 Cum
4	Biomining Started/ Completed	Not initiated
5	Area cleared & use of reclaimed land	NA
6	Quantity of waste processed per day	NA
7	proposed plan for completion of biomining	NA
8	Leachate management	NP
9	No. of Fire incidents & reasons thereof	None
10	Ambient air quality monitoring	No
11	Methane gas measurement and mitigation measures adopted	No
C. Status of sanitary landfill		
1	No. of SLF	No Sanitary Landfill Site (SLF) Jaisalmer (1 SLF proposed)

Observation:

1. There is a 65% gap in solid waste management in Jaisalmer.
2. Fresh waste is being dumped at Badabagh, Jaislmer dumsite.
3. Leachate management status has not been provided.
4. Bio mining has not yet started at Badabagh dumpsite.
5. Fire incidents have not been reported during last 5 years.
6. Ambient air quality monitoring is not being carried out at dumpsite.
7. On-site monitoring of methane emissions is not done.
8. There is not SLF at Jaisalmer.

OIL & GAS SITES IN ASSAM & RAJASTHAN

The Oil and Gas sites identified by IIRS, ISRO as hospots locations for methane emissions in cities of Nazira, Tinsukia, Dibrugarh, Jaiselmer, Barmer have been verified and details are given below:

Assam:

There are 03 O & G sites viz Kathalguri, Dibrugarh, Jorajan OCS,Tinsukia and ONGC site at Nazira. Details are given below:

S.No.	Particulars	Remarks
1.	State Name	Assam
2.	City Name	Dibrugarh
3.	Name & Address of the O & G Unit with contact details	Kathalguri OCS, Duliajan, Dist : Dibrugarh, Pin-786602
4.	Lat, Long of site	27.368, 95.446
5.	CTO/CTE/Authorization given by SPCB : Details with validity status	Yes Validity upto 31.03.2027
6.	Methane gas generation (Specify the latest quantity) Conversion to production (% Utilization) Balance- % Disposed to the environment 1. Flaring 2. Other purposes	4,45,000 (natural gas)SCMD 89 % Methane content Utilization – HP & LP gas Flaring : 1500 SCMD Other purpose : NIL
7.	Mitigation measures taken for reduction in organic emission including methane	LEL monitoring system
8.	Methane detector installed (Yes/No)	Yes
9.	Fire incident at site in last 5 years (If yes , mention the year & reason for the fire)	No
10.	Emergency plan for fire prevention (Onsite & Offsite with details)	Inhouse Firefighting facilities,

		Emergency response plan available
11.	OCEMS installed & connected to CPCB/SPCB Server (Yes/No)	No
12.	Ambient air quality monitoring with standards (Recent data & Compliance of the parameters)	Yes Under prescribed limit (SO_x – 8.1µg/m^3 NO_x – 24.1 µg/m^3 $PM_{2.5}$ - 31.1 µg/m^3 PM_{10} - 62.2 µg/m^3)
13.	**Any other information**	NIL

Observations:

- There is one site of O&G in Dibrugarh which is Kathaguri OCS Duliajan.
- CTO/CTE/Authorization is given by SPCB having validity upto 31.03.2027.
- There is 89 % methane content in natural gas out of which 0.34 % is flared in the environment.
- Continuous LEL monitoring system is in place to monitor and control fugitive emissions.
- No fire incident reported at the site in last 5 years.
- Ambient air quality measured on April 2024, which is under prescribed limit.

S.No.	Particulars	Remarks
1.	State Name	Assam
2.	City Name	Tinsukia
3.	Name & Address of the O & G Unit with contact details	JORAJAN OCS, Vill-JORAJAN, P.O. DIGBOI, Dist : Tnsukia, Pin : 786171
4.	Lat, Long of site	27.341, 95.484
5.	CTO/CTE/Authorization given by SPCB : Details with validity status	Yes Validity : 31.03.2027
6.	Methane gas generation (Specify the latest quantity) Conversion to production (% Utilization) Balance- % Disposed to the environment 3. Flaring 4. Other purposes	2,04,447(Natural gas) SCMD 89 % Methane content Utilization – HP & LP gas Flaring: 2285 SCMD Other purpose : NIL
7.	Mitigation measures taken for reduction in organic emission including methane	LEL monitoring system High energy ignition based remote ignition system Online gas monitoring system
8.	Methane detector installed (Yes/No)	Yes

9.	Fire incident at site in last 5 years (If yes , mention the year & reason for the fire)	No
10.	Emergency plan for fire prevention (Onsite & Offsite with details)	Inhouse Firefighting facilities, Emergency response plan available
11.	OCEMS installed & connected to CPCB/SPCB Server (Yes/No)	No
12.	Ambient air quality monitoring with standards (Recent data & Compliance of the parameters)	Yes Under prescribed limit (SO_x – 7.3 µg/m^3 NO_x – 23.2 µg/m^3 $PM_{2.5}$ – 39.3 µg/m^3 PM_{10} – 66.8 µg/m^3)
13.	**Any other information**	NIL

Observations:

- There is one site of O&G in Tinsukia which is Jorajan OCS, Digboi.
- CTO/Authorization is given by SPCB having validity upto 31.03.2027.
- There is 89 % methane content in natural gas out of which 1.12 % flared in the environment.
- Continuous LEL monitoring system is in place to monitor and control fugitive emissions. Implementation of high energy ignition based remote ignition system for flaring is going on.
- No fire incident reported at the site in last 5 years.
- Ambient air quality measured on April 2024, which is under prescribed limit.

S.No.	Particulars	Remarks
1.	State Name	Assam
2.	City Name	Nazira
3.	Name & Address of the O & G Unit with contact details	ONGC, Assam Asset, Nazira, Assam-785685.
4.	Lat, Long of site	26.91, 94.74
5.	CTO/CTE/Authorization given by SPCB : Details with validity status	Yes Validity : 31.03.2026
6.	Methane gas generation (Specify the latest quantity) Conversion to production (% Utilization) Balance- % Disposed to the environment 5. Flaring 6. Other purposes	Natural Gas production and utilization data of the year 2023-24 is as follows: Natural Gas production: 274.31 MMSCM. Natural Gas Sales: 80.09 MMSCM. Internal Use:

		174.67 MMSCM Technical Flare: 19.55 MMSCM
7.	Mitigation measures taken for reduction in organic emission including methane	Preventive maintenance of equipment and pipeline, Patrolling and line walks of pipelines, Installation of Advanced flaring systems
8.	Methane detector installed (Yes/No)	Yes
9.	Fire incident at site in last 5 years (If yes , mention the year & reason for the fire)	In 2023, due to gasket failure, a fire incident took place which was brought under control and no crew members were injured during this incident.
10	Emergency plan for fire prevention (Onsite & Offsite with details)	Installation wise ERP (Emergency response Plan) is maintained
11	OCEMS installed & connected to CPCB/SPCB Server (Yes/No)	No
12	Ambient air quality monitoring with standards (Recent data & Compliance of the parameters)	Yes Under prescribed limit (SO_x – 12µg/m^3 NO_x – 16µg/m^3 $PM_{2.5}$ – 16µg/m^3 PM_{10} – 68µg/m^3)
13	Any other information	In 2023 – 24, approximately 15000 saplings were planted by ONGC Assam Asset to maintain carbon sink in and around Sivasagar district. This FY (2024-25) too, the target to be achieved. Carbon Capture Utilization and Storage - under preliminary/ testing stage.

Observations:

- There is one site of O&G in Nazira, Assam .
- CTO/Authorization is given by SPCB having validity upto 31.03.2026.
- Out of 274.31 MMSCM, 7.13 % is flared in the environment.
- Preventive maintenance of equipment and pipeline, Patrolling and line walks of pipelines & installation of Advanced flaring systems as mitigation measures.
- Fire incident reported once in 2023 due to gasket failure.
- Ambient air quality measured on Dec 2023, which is under prescribed limit.

Rajasthan:

There are 2 O & G sites viz. methane hotspot area is identified by IIRS, ISRO Dehradun which are in Focus energy limited, Jaisalmer and O&G Banda , Barmer.

S.No.	Particulars	Remarks
1.	State Name	Rajasthan
2.	City Name	Jaisalmer
3.	Name & Address of the O & G Unit with contact details	M/s Focus energy limited, SGL Gas field, block-RJ-ON/6 Vill-Langtala, Tehsil & District- Jaisalmer
4.	Lat, Long of site	27.141, 69.759
5.	CTO/CTE/Authorization given by SPCB : Details with validity status	Yes Validity : 31.01.2028
6.	Methane gas generation (Specify the latest quantity) Conversion to production (% Utilization) Balance- % Disposed to the environment 7. Flaring 8. Other purposes	78000 (Natural gas) SCMD 85 % Methane gas Flaring: NIL Other purpose : Supplied to gas based thermal power plant
7.	Mitigation measures taken for reduction in organic emission including methane	Vapour recovery units to capture methane emissions. Installation of leak detection and repair system, methane oxidizing bio-filters. Regular assessments and audits.
8.	Methane detector installed (Yes/No)	Yes
9.	Fire incident at site in last 5 years (If yes , mention the year & reason for the fire)	No
10	Emergency plan for fire prevention (Onsite & Offsite with details)	Fire extinguishers, Fire detection and alarm system, Regular fire drills
11	OCEMS installed & connected to CPCB/SPCB Server (Yes/No)	No

12	Ambient air quality monitoring with standards (Recent data & Compliance of the parameters)	Yes Under prescribed limit (SO_x – 8.12 µg/m^3 NO_x – 25.72 µg/m^3 $PM_{2.5}$ – 45.12 µg/m^3 PM_{10} – 90.23 µg/m^3)
13	Any other information	NIL

Observations:

- There is one site of O&G in Jaisalmer which is O&G-GGS.
- CTO/Authorization is given by SPCB having validity upto 31.01.2028.
- There is 85 % methane in natural gas out of which no flaring is being carried out.
- Installation of vapor recovery to capture and process methane emissions, regular maintenance and inspection of equipment to prevent leaks, implementation of leak detection and repair system, methane oxidizing bio-filters to reduce emissions
- No fire incident reported at the site in last 5 years.
- Ambient air quality measured at 2 locations on April 2024.Out of 2 locations, all sites comply with SOx, NOx & PM_{10} data as per NAAQS norms.

S.No.	Particulars	Remarks
14.	State Name	Rajasthan
15.	City Name	Barmer
16.	Name & Address of the O & G Unit with contact details	Vedanta Limited , Cairn oil & Gas Aishwarya NA 01 &AWP 08 (ABH facility) Village- Kauka Khera, Tehsil & District- Barmer
17.	Lat, Long of site	25.903, 71.572
18.	CTO/CTE/Authorization given by SPCB : Details with validity status	Yes Validity : 30.09.2025
19.	Methane gas generation (Specify the latest quantity) Conversion to production (% Utilization) Balance- % Disposed to the environment 9. Flaring 10. Other purposes	318795(Natural gas) SCMD 16 % Methane content (52091 SCMD) No utilization Flaring: 52091 SCMD Other purpose : NIL
20.	Mitigation measures taken for reduction in organic emission including methane	Separation and flaring after proper combustion

		through designed flaring system
21.	Methane detector installed (Yes/No)	Yes
22.	Fire incident at site in last 5 years (If yes , mention the year & reason for the fire)	No
23.	Emergency plan for fire prevention (Onsite & Offsite with details)	Emergency plan available
24.	OCEMS installed & connected to CPCB/SPCB Server (Yes/No)	No
25.	Ambient air quality monitoring with standards (Recent data & Compliance of the parameters)	Yes Under prescribed limit (Monitored at 3 sites)
26.	Any other information	NIL

Observations:

- There is one site of O&G in Barmer which is Vedanta limited, Cairn Oil & gas.
- CTO/Authorization is given by SPCB having validity upto 30.09.2025.
- There is 16 % methane in natural gas out of which 100% flaring is being carried out.
- Separation and flaring after proper combustion through designed flaring system to reduce emissions.
- No fire incident reported at the site in last 5 years.
- Ambient air quality measured at 3 locations on June 2024. Out of 3 locations, all sites comply with the NOx, SOx data, but PM_{10} exceeds as per NAAQS norms

Format for Cities having O&G sites: Onshore

Ref.: i) Letter No. PCBA/T-404/24-25/18, dated 24.06.2024

ii) Site visit of Geleky oilfield by PCBA, Sivasagar officials on 03.07.2024

<table>
<tr><th>S. No.</th><th>Particulars</th><th>Remarks</th></tr>
<tr><td>1.</td><td>State Name</td><td>Assam</td></tr>
<tr><td>2.</td><td>City Name</td><td>Geleki, Nazira, Dist. Sivasagar, Assam</td></tr>
<tr><td>3.</td><td>Name & Address of the O&G Unit with contact details</td><td>Following O&G units are in the same campus:
<table><tr><th>S/N</th><th>Installation Name</th></tr><tr><td>i</td><td>GELEKY GGS-2</td></tr><tr><td>ii</td><td>GELEKY CTF</td></tr><tr><td>iii</td><td>GELEKY ETP (old)</td></tr><tr><td>iv</td><td>GELEKY WIP (old)</td></tr><tr><td>v</td><td>GLK NEW ETP-WIP</td></tr><tr><td>vi</td><td>GELEKY CPP</td></tr><tr><td>vii</td><td>GELEKY GCP-I</td></tr><tr><td>viii</td><td>GELEKY GCP-II & III</td></tr></table>
Address: Chutia Gaon, Assam-785696</td></tr>
<tr><td>4.</td><td>Lat, Long of site</td><td><table><tr><th>S/N</th><th>Installation Name</th><th>Lat</th><th>Long</th></tr><tr><td>i</td><td>GELEKY GGS-2</td><td>26.80196</td><td>94.68829</td></tr><tr><td>ii</td><td>GELEKY CTF</td><td>26.79406</td><td>94.68591</td></tr><tr><td>iii</td><td>GELEKY ETP (old)</td><td>26.79306</td><td>94.68278</td></tr><tr><td>iv</td><td>GELEKY WIP (old)</td><td>26.79306</td><td>94.68278</td></tr><tr><td>v</td><td>GLK NEW ETP-WIP</td><td>26.79194</td><td>94.68333</td></tr><tr><td>vi</td><td>GELEKY CPP</td><td>26.79694</td><td>94.68528</td></tr><tr><td>vii</td><td>GELEKY GCP-I</td><td>26.80075</td><td>94.68536</td></tr><tr><td>viii</td><td>GELEKY GCP-II & III</td><td>26.80075</td><td>94.68536</td></tr></table></td></tr>
<tr><td>5.</td><td>CTO/CTE/Authorization given by SPCB: Details with validity status</td><td>CTO (Consent To Operate) Certificates:
i) GLK GGS-2: valid up to 31.03.2026.
ii) GLK CTF: valid up to 31.03.2026.
iii) GLK ETP OLD: valid up to 31.03.2025.
iv) GLK WIP OLD: valid up to 31.03.2026.
v) GLK NEW ETP-WIP: valid up to 31.03.2026.
vi) GLK CPP: valid up to 31.03.2026.
vii) GLK GCP-I: valid up to 31.03.2026.
viii) GCP-II&III: valid up to 31.03.2026.

HWM Authorization Certificate: No. WB/OTWA/HW-353/20-21/373, dated 29/06/2022, Valid up to 31/03/2027.</td></tr>
</table>

6.	Methane gas generation (Specify the latest quantity) Conversion to production (% Utilization) Balance- % Disposed to the environment. 1. Flaring 2. Other purposes	In the above-mentioned complex of 8 installations, technical flaring is being done from Geleki GGS-2 and Geleki GCP (I, II & III). Average Natural gas produced from Geleky GGS-2 is 45,266 SCM/day (% of Methane in Natural gas is 81 to 83% approx.). 1) Average Technical Flaring of GLK GGS-2: 333 SCM/day (0.8%) 2) Other purpose: Nil Utilization: 99.2% No Natural Gas is generated in Geleky GCP (I, II & III). Natural Gas received from Geleki GGS-1, 2 & 3 is compressed in Geleky GCP (I, II & III). 1) Average Technical Flaring of GCP: 5,501 SCM/day 2) Other purpose: Nil
7.	Mitigation measures taken for reduction in organic emission including methane	▪ Preventive maintenance of equipment and pipeline is carried out to protect equipment and integrity of the system to avoid accidental release of oil and gas. Patrolling and line walks of pipelines is undertaken to detect any leakage. ▪ Measures like cathodic protection, corrosion inhibitor injection, pigging etc. are taken for pipeline health maintenance. ▪ Advanced and eco-friendly flaring systems are being installed at Geleky GGS-2 and GCP under Flare Revamping Project of ONGC, Assam Asset.
8.	Methane detector installed (Yes/No)	Yes. Fixed Hydrocarbon Gas Detection system is installed in the operational areas of the installations.
9.	Fire incident at site in last 5 years (If yes , mention the year & reason for the fire)	No.
10.	Emergency plan for fire prevention (Onsite & Offsite with details)	ERP (Onsite and offsite) available. Inhouse firefighting facilities are available in the installation. ONGC Fire Station with Fire tenders is located at Atkhal Village near GGS-2 Geleky.

11.	OCEMS installed & connected to CPCB/SPCB Server (Yes/No)	No.
12.	Ambient air quality monitoring with standards (Recent data & Compliance of the parameters)	Available. Ambient air quality monitoring was done in November 2023 and next cycle of monitoring is ongoing. All parameters are within normal limits.
13.	Any other information	In 2023 – 24, approximately 15,000 saplings were planted by ONGC Assam Asset to maintain carbon sink in and around Sivasagar district. This FY (2024-25) too, the target to be achieved.

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MAHARASHTRA POLLUTION CONTROL BOARD

Phone : 022-67195031
Email : icclab@mpcb.gov.in
Website : http://mpcb.gov.in

"Your Service is our Duty"

Central Laboratory
Central Laboratory, Maharashtra Pollution Control Board, P-3, "Nirmal Bhavan", MIDC Industrial Area, Mahape, Navi Mumbai- 400 710

Repot Outward No.: MPCB/CLab/Ambient/24-25/04/11
Date: 01/04/2024 04:03 PM

Analysis Report-Air (Ambient)

Client/Industry/location Name & Address
Dumping Ground R14 Common treatment and disposal facilities (CETP, TSDF, E-Wast

Sample Details	
Field Sample ID :	BR-0068514
Laboratory Sample Code :	MPCB/CLab/AMB/23-24/881
Sample Details (Water/Air/HW) :	Air
Sample Volume Received :	
Sample Collected By :	FO-Kalyan I (Rajesh D. Nandgaonkar) (SRO-Kalyan I)
Seal No. :	217
Type of Industry / Location details :	
Sample Collected On :	Mar 7 2024 01:00:00:000PM

Sr.No	Parameter	Starting Time	Closing Time	Result	Unit	Method of analysis
1	PM10	07-03-2024 13:00	07-03-2024 21:00	822	$\mu g/m^3$	
2	PM10	07-03-2024 21:00	08-03-2024 05:00	1249	$\mu g/m^3$	
3	PM10	08-03-2024 05:00	08-03-2024 13:00	203	$\mu g/m^3$	
4	SO2	07-03-2024 13:00	07-03-2024 17:00	BDL	$\mu g/m^3$	
5	SO2	07-03-2024 17:00	07-03-2024 21:00	BDL	$\mu g/m^3$	
6	SO2	07-03-2024 21:00	08-03-2024 01:00	BDL	$\mu g/m^3$	
7	SO2	08-03-2024 01:00	08-03-2024 05:00	BDL	$\mu g/m^3$	
8	SO2	08-03-2024 05:00	08-03-2024 09:00	BDL	$\mu g/m^3$	
9	SO2	08-03-2024 09:00	08-03-2024 13:00	BDL	$\mu g/m^3$	
10	NOx	07-03-2024 13:00	07-03-2024 17:00	BDL	$\mu g/m^3$	
11	NOx	07-03-2024 17:00	07-03-2024 21:00	BDL	$\mu g/m^3$	
12	NOx	07-03-2024 21:00	08-03-2024 01:00	BDL	$\mu g/m^3$	
13	NOx	08-03-2024 01:00	08-03-2024 05:00	BDL	$\mu g/m^3$	
14	NOx	08-03-2024 05:00	08-03-2024 09:00	BDL	$\mu g/m^3$	
15	NOx	08-03-2024 09:00	08-03-2024 13:00	BDL	$\mu g/m^3$	

Report Type: final

Report generated on: 01/04/2024 03:50 PM

Complied by: Archana Lendait

Approved by: Dr P D Khadkikar

Reviewed on Date: 01/04/2024 04:03 PM

Reviewed by: Dr P D Khadkikar

Dr P D Khadkikar
Senior Scientific Officer,
I/c Central Laboratory,
MPCB, Navi Mumbai.

* Electronic report does not require signature

Note :
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3. The Contents of this Report shall not be reproduced in part or in full without written approval of laboratory.

*** End of the Report ***

MAHARASHTRA POLLUTION CONTROL BOARD

Phone : 022-25820423 Fax : - Email : mpcbthanelab@mpcb.gov.in Website : http://mpcb.gov.in	"Your Service is our Duty"	**Regional Laboratory** Regional Laboratory, Thane, Maharashtra Pollution Control Board, Office Complex Building, 5th Floor, Wagle Estate, Near Mulund check Naka. Thane-400 604.

Repot Outward No.: MPCB/RL-Thane/Ambient/24-25/04/5
Date: 12/04/2024 03:39 PM

Analysis Report-Air (Ambient)

Client/Industry/location Name & Address
Deonar Dumping Ground Local Body

Sample Details	
Field Sample ID :	BR-0069751
Laboratory Sample Code :	MPCB/RL-Thane/AMB/24-25/2
Sample Details (Water/Air/HW) :	Air
Sample Volume Received :	
Sample Collected By :	FO-Mumbai III (Shri. Nilesh Marbhal) (SRO-Mumbai III)
Seal No. :	183
Type of Industry / Location details :	
Sample Collected On :	Mar 27 2024 11:00:00:000AM

Sr.No	Parameter	Starting Time	Closing Time	Result	Unit	Method of analysis
1	PM10	27-03-2024 11:00	27-03-2024 19:00	172	$\mu g/m^3$	
2	PM10	27-03-2024 19:00	28-03-2024 03:00	233	$\mu g/m^3$	
3	PM10	28-03-2024 03:00	28-03-2024 11:00	164	$\mu g/m^3$	
4	PM 2.5	27-03-2024 11:00	28-03-2024 11:00	54	$\mu g/m^3$	
5	SO2	27-03-2024 11:00	27-03-2024 15:00	BDL	$\mu g/m^3$	
6	SO2	27-03-2024 15:00	27-03-2024 19:00	BDL	$\mu g/m^3$	
7	SO2	27-03-2024 19:00	27-03-2024 23:00	BDL	$\mu g/m^3$	
8	SO2	27-03-2024 23:00	28-03-2024 03:00	BDL	$\mu g/m^3$	
9	SO2	28-03-2024 03:00	28-03-2024 07:00	BDL	$\mu g/m^3$	
10	SO2	28-03-2024 07:00	28-03-2024 11:00	BDL	$\mu g/m^3$	
11	H2S	27-03-2024 11:00	27-03-2024 15:00	0	$\mu g/m^3$	
12	H2S	27-03-2024 19:00	27-03-2024 23:00	0	$\mu g/m^3$	
13	H2S	27-03-2024 23:00	28-03-2024 03:00	0	$\mu g/m^3$	
14	H2S	27-03-2024 15:00	27-03-2024 19:00	0	$\mu g/m^3$	
15	H2S	28-03-2024 03:00	28-03-2024 07:00	0	$\mu g/m^3$	
16	H2S	28-03-2024 07:00	28-03-2024 11:00	0	$\mu g/m^3$	

Sr.No	Parameter	Starting Time	Closing Time	Result	Unit	Method of analysis
17	NOx	27-03-2024 11:00	27-03-2024 15:00	BDL	$\mu g/m^3$	
18	NOx	27-03-2024 15:00	27-03-2024 19:00	BDL	$\mu g/m^3$	
19	NOx	27-03-2024 19:00	27-03-2024 23:00	BDL	$\mu g/m^3$	
20	NOx	27-03-2024 23:00	28-03-2024 03:00	BDL	$\mu g/m^3$	
21	NOx	28-03-2024 03:00	28-03-2024 07:00	BDL	$\mu g/m^3$	
22	NOx	28-03-2024 07:00	28-03-2024 11:00	BDL	$\mu g/m^3$	

Report Type: final

Report generated on: 12/04/2024 03:39 PM

Complied & Approved by: Dr. Smita Wagh

Reviewed on Date: 12/04/2024 03:38 PM

Reviewed by: Dr. Smita Wagh

Dr. Smita Wagh
Scientific Officer,
I/c Regional Laboratory,
Thane,

* Electronic report does not require signature

Note :
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"Your Service is our Duty"

MAHARASHTRA POLLUTION CONTROL BOARD
Regional Laboratory, Pune.
Regional Laboratory, Pune, Maharashtra Pollution Control Board, Jog Center, 3rd Floor,Mumbai Pune Road, Wakdewadi,Pune- 411 003 Tel : 020-25811698
Fax : 020-25811698
e-mail : sopunelab@mpcb.gov.in
website : http://mpcb.gov.in

NABL Accreditation: ISO/IEC 17025:2017, TC-11275	Issue Date: 10-01-2023 Validity: 09-01-2025
Certification Standards: ISO 9001: 2015, C.NO.944015/r1-S-2	Issue Date: 18-04-2023 Validity: 25-02-2024
Certification Standards: ISO 45001: 2018, C.NO.944015/S-2	Issue Date: 09/04/2021 Validity: 25-02-2024
MoEF Recognition: LB/99/7/2021-INST LAB-CPCB-HO/Govt./6646	Issue Date: 16-06-2023 Validity: 25-02-2024

COA/Test Report No.: MPCB/RL-Pune/Ambient/24-25/04/47	**Date:** 10/04/2024 01:15 PM
ULR No.: TC-1127524000000147F	

Test Report-Air (Ambient)

Field Sample ID		BR-0069774	Type of Industry	Red (LSI)
Name & Address of the Industry		Antony Lara Renewable Energy Private Limited		
Industry Consent No./UAN No.		MPCB-CONSENT-0000095070	Type of Sample	Air
Sample collected by (Officer Name)		FO-Pimpri Chinchwad (Mrs. Seema Salve) (SRO-Pimpri Chinchwad)	Location of sample collection	N/A
Seal No.:		210	Method of sample collection	N/A
Sample Collection	Date	19/03/2024	Total No. of Containers	N/A
	Time	10:00 PM	Nature/Description of Sample	-
Sampler UID		-	Sampling Duration	480
Serial No		3304		

Lab ID		MPCB/RL-Pune/AMB/24-25/2		
Receipt	Date	02/04/2024	Anylysis Started On	02/04/2024 12:44 PM
	Time	11:46 AM	Anylysis Completed On	10/04/2024 01:01 PM
Sample recived by (Name & Degsignation)		Anil Sandansing (Scientific Officer)		

Sr.No	Parameter	Results	Unit	Test Method	Permissible Limit
1	PM10	216	µg/m3	As Per SOP	100

Sr.No	Parameter	Results	Unit	Test Method	Permissible Limit
2	SO2	7	µg/m3	As Per SOP	80
3	SO2	9	µg/m3	As Per SOP	80
4	NOx	21	µg/m3	As Per SOP	80
5	NOx	24	µg/m3	As Per SOP	80

Remarks:

Approved & Reviewed By

Anil Sandansing
I/c Scientific Officer,
Regional Laboratory, Pune,

Note :
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2. Abbreviations: - BDL=Below Detectable limit, N.D.=Not Detected, N.A.= Not Analyzed
3. The Contents of this Report shall not be reproduced in part or in full without written approval of laboratory.

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MAHARASHTRA POLLUTION CONTROL BOARD

Phone : 020-25811698 Fax : 020-25811698 Email : sopunelab@mpcb.gov.in Website : http://mpcb.gov.in	"Your Service is our Duty"	**Regional Laboratory** Regional Laboratory, Pune, Maharashtra Pollution Control Board, Jog Center, 3rd Floor,Mumbai Pune Road, Wakdewadi,Pune- 411 003

Repot Outward No.: MPCB/RL-Pune/Ambient/24-25/04/47
Date: 10/04/2024 01:15 PM

Analysis Report-Air (Ambient)

Client/Industry/location Name & Address
Antony Lara Renewable Energy Private Limited R9 Power generation plant [except Wind and Solar renewable power plants of all capacities and Mini Hydel power plant of capacity <25MW]

Sample Details	
Field Sample ID :	BR-0069774
Laboratory Sample Code :	MPCB/RL-Pune/AMB/24-25/2
Sample Details (Water/Air/HW) :	Air
Sample Volume Received :	
Sample Collected By :	FO-Pimpri Chinchwad (Mrs. Seema Salve) (SRO-Pimpri Chinchwad)
Seal No. :	210
Type of Industry / Location details :	red
Sample Collected On :	Mar 19 2024 10:00:00:000PM

Sr.No	Parameter	Starting Time	Closing Time	Result	Unit	Method of analysis

Report Type: final

Report generated on: 10/04/2024 01:02 PM

Complied & Approved by: Anil Sandansing

Reviewed on Date: 10/04/2024 01:15 PM

Reviewed by: Anil Sandansing

Anil Sandansing
I/c Scientific Officer,
Regional Laboratory, Pune,

* Electronic report does not require signature

Note :
1. The results refer to the samples and parameters requested for analysis.
2. Abbreviations: - BDL=Below Detectable limit, N.D.=Not Detected, N.A.= Not Analyzed
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"Your Service is our Duty"

MAHARASHTRA POLLUTION CONTROL BOARD
Regional Laboratory, Thane.
Office complex building, 5th floor, Wagle Estate, Near Mulund Check Naka,
Thane- 400604, Tel : 022-25820423
e-mail : sothanelab@mpcb.gov.in
website : http://mpcb.gov.in

TC-11520

NABL Accreditation:- ISO/IEC 17025:2017, TC-11520	Issue Date: 30-03-2023 Validity: 29-03-2025
Certification Standards:- ISO 45001: 2018, 944015/r1-S-7	Issue Date: 18-04-2023 Validity: 25-02-2024
MoEF Recognition:	Issue Date: Validity:

COA/Test Report No.: MPCB/RL-Thane/Ambient/24-25/05/18	**Date:** 18/05/2024 04:30 PM
ULR No.: TC-1152024000000040F	

Test Report-Air (Ambient)

Field Sample ID		BR-0072380	Type of Industry	Red (LSI)
Name & Address of the Industry		Antony Lara, Enviro Solution Pvt. Ltd.		
Industry Consent No./UAN No.		MPCB-UNCONSENTED-0000047682	Type of Sample	Air
Sample collected by (Officer Name)		FO-Mumbai III (Shri. Nilesh Marbhal) (SRO-Mumbai III)	Location of sample collection	N/A
Seal No.:		183	Method of sample collection	N/A
Sample Collection	Date	08/05/2024	Total No. of Containers	N/A
	Time	10:00 AM	Nature/Description of Sample	-
Sampler UID		-	Sampling Duration	480
Serial No		1633		

Lab ID		**MPCB/RL-Thane/AMB/24-25/39**		
Received by lab	Date	10/05/2024	Anylysis Started On	13/05/2024 11:41 AM
	Time	03:44 PM	Anylysis Completed On	18/05/2024 04:30 PM
Sample recived by (Name & Designation)		Dr. Smita Wagh (Scientific Officer)		

Sr.No	Parameter	Results	Unit	Test Method	Permissible Limit
1	PM10	187	µg/m3	0	100
2	PM10	351	µg/m3	0	100
3	PM10	225	µg/m3	0	100
4	SO2	BDL	µg/m3	0	80

Sr.No	Parameter	Results	Unit	Test Method	Permissible Limit
5	SO2	BDL	µg/m3	0	80
6	SO2	BDL	µg/m3	0	80
7	SO2	BDL	µg/m3	0	80
8	SO2	BDL	µg/m3	0	80
9	SO2	BDL	µg/m3	0	80
10	NOx	BDL	µg/m3	0	80
11	NOx	BDL	µg/m3	0	80
12	NOx	BDL	µg/m3	0	80
13	NOx	BDL	µg/m3	0	80
14	NOx	BDL	µg/m3	0	80
15	NOx	BDL	µg/m3	0	80

Remarks:

Approved & Reviewed By

Dr. Smita Wagh
Scientific Officer,
I/c Regional Laboratory, Thane,

Note :
1. The results refer to the samples and parameters requested for analysis.
2. Abbreviations: - BDL=Below Detectable limit, N.D.=Not Detected, N.A.= Not Analyzed
3. The Contents of this Report shall not be reproduced in part or in full without written approval of laboratory.

*** End of the Report ***

MAHARASHTRA POLLUTION CONTROL BOARD

Phone : 022-25820423 Fax : - Email : sothanelab@mpcb.gov.in Website : http://mpcb.gov.in	"Your Service is our Duty"	**Regional Laboratory** Office complex building, 5th floor, Wagle Estate, Near Mulund Check Naka, Thane- 400604

Repot Outward No.: MPCB/RL-Thane/Ambient/24-25/05/18
Date: 18/05/2024 04:30 PM

Analysis Report-Air (Ambient)

Client/Industry/location Name & Address
Antony Lara, Enviro Solution Pvt. Ltd. Local Body

Sample Details	
Field Sample ID :	BR-0072380
Laboratory Sample Code :	MPCB/RL-Thane/AMB/24-25/39
Sample Details (Water/Air/HW) :	Air
Sample Volume Received :	
Sample Collected By :	FO-Mumbai III (Shri. Nilesh Marbhal) (SRO-Mumbai III)
Seal No. :	183
Type of Industry / Location details :	
Sample Collected On :	May 8 2024 10:00:00:000AM

Sr.No	Parameter	Starting Time	Closing Time	Result	Unit	Method of analysis
1	PM 2.5	08-05-2024 10:00	09-05-2024 10:00	4	$\mu g/m^3$	
2	H2S	08-05-2024 10:00	08-05-2024 14:00	0	$\mu g/m^3$	
3	H2S	08-05-2024 14:00	08-05-2024 18:00	0	$\mu g/m^3$	
4	H2S	08-05-2024 18:00	08-05-2024 22:00	0	$\mu g/m^3$	
5	H2S	08-05-2024 22:00	09-05-2024 02:00	0	$\mu g/m^3$	
6	H2S	09-05-2024 02:00	09-05-2024 06:00	0	$\mu g/m^3$	
7	H2S	09-05-2024 06:00	09-05-2024 10:00	0	$\mu g/m^3$	

Report Type: final

Report generated on: 18/05/2024 04:32 PM

Complied & Approved by: Dr. Smita Wagh

Reviewed on Date: 18/05/2024 04:30 PM

Reviewed by: Dr. Smita Wagh

Dr. Smita Wagh
Scientific Officer,
I/c Regional Laboratory,
Thane,

* Electronic report does not require signature

Note :
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2. Abbreviations: - BDL=Below Detectable limit, N.D.=Not Detected, N.A.= Not Analyzed
3. The Contents of this Report shall not be reproduced in part or in full without written approval of laboratory.

*** End of the Report ***

NAKSHATRA ENVIRO SERVICES

Plot No. 46, Solitaire Industrial Park, Phase I, Dahmi Kalan, Bagru (Ext.), Jaipur - 303007
Website : www.nakshatraenviro.in I M.: 9413666777, 8003896245
E-mail : neslab2004@gmail.com, nakshatraenviro@gmail.com

Recognized by Ministry of Environment, Forest and Climate Change, Government of India
ISO 9001 : 2015, ISO 14001 : 2015 & ISO 45001 : 2018 Certified Laboratory

Reference No.: NES-ENV-240417002 Date:22/04/2024

TEST CERTIFICATE
AMBIENT AIR QUALITY MONITORING

Issued to	M/s. Focus Energy Limited Gas Gathering Station (GGS)
Address	Near Village – Langtala, Tehsil – Jaisalmer, District – Jaisalmer (Rajasthan – IN)
Industrial Activity	Natural Gas Collection Station

SAMPLE DETAILS

Sampling Location	Near Main Gate, GGS Installation
Date of Sampling	14/04/2024
Ambient Temperature	Max. 34°C & Min. 26°C
Relative Humidity	34%
Weather Conditions	Clear Sky
Period of Testing	17/04/2024 to 22/04/2024

TEST RESULTS

Sl. No.	Parameters	Values Found	NAAQS	Unit	Protocol
1.	PM_{10}	93.45	100	$\mu g/m^3$	IS 5182 (P-23):2006 (RA 2017)
2.	$PM_{2.5}$	44.98	60	$\mu g/m^3$	As per CPCB guidelines
3.	Sulphur dioxide (SO_2)	9.12	80	$\mu g/m^3$	IS 5182 (P-02):2001 (RA 2017)
4.	Oxides of Nitrogen (NO_X)	26.52	80	$\mu g/m^3$	IS 5182 (P-06):2006 (RA 2017)
5.	Carbon Monoxide (CO)	0.71	2.00	mg/m^3	IS 5182 (P-10):1999 (RA 2019)
6.	Total Hydrocarbon (as CH_4)	0.19	--	$\mu g/m^3$	IS 5182 (P-17):1979 (RA 2019)
7.	Volatile Organic Carbon (as BTX)	0.30	--	$\mu g/m^3$	IS 5182 (P-11):2006 (RA 2017)

Note: BDL – Below Detection Limit

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- Total liability of this laboratory is limited to the invoice amount.
- The results enlisted refer only to the above sample and applicable parameters endorsement of products is neither inferred nor implied.
- Samples will be destroyed after 15 days from the date of issuing of analysis of report unless otherwise specified.

Harshita
(Harshita)
Review By

Seal

Saurabh
(Saurabh Sharma)
Authorized Signatory

*** END OF REPORT ***

NAKSHATRA ENVIRO SERVICES

Plot No. 46, Solitaire Industrial Park, Phase I, Dahmi Kalan, Bagru (Ext.), Jaipur - 303007
Website : www.nakshatraenviro.in I M.: 9413666777, 8003896245
E-mail : neslab2004@gmail.com, nakshatraenviro@gmail.com

Recognized by Ministry of Environment, Forest and Climate Change, Government of India
ISO 9001 : 2015, ISO 14001 : 2015 & ISO 45001 : 2018 Certified Laboratory

Reference No.: NES-ENV-240417003 Date: 22/04/2024

TEST CERTIFICATE
AMBIENT AIR QUALITY MONITORING

Issued to	M/s. Focus Energy Limited Gas Gathering Station (GGS)
Address	Near Village – Langtala, Tehsil – Jaisalmer, District – Jaisalmer (Rajasthan – IN)
Industrial Activity	Natural Gas Collection Station

SAMPLE DETAILS

Sampling Location	Near MLU Barnet Rig, Loharu
Date of Sampling	14/04/2024
Ambient Temperature	Max. 34°C & Min. 26°C
Relative Humidity	34%
Weather Conditions	Clear Sky
Period of Testing	17/04/2024 to 22/04/2024

TEST RESULTS

Sl. No.	Parameters	Values Found	NAAQS	Unit	Protocol
1.	PM_{10}	90.23	100	$\mu g/m^3$	IS 5182 (P-23):2006 (RA 2017)
2.	$PM_{2.5}$	45.12	60	$\mu g/m^3$	As per CPCB guidelines
3.	Sulphur dioxide (SO_2)	8.12	80	$\mu g/m^3$	IS 5182 (P-02):2001 (RA 2017)
4.	Oxides of Nitrogen (NO_X)	25.72	80	$\mu g/m^3$	IS 5182 (P-06):2006 (RA 2017)
5.	Carbon Monoxide (CO)	0.69	2.00	mg/m^3	IS 5182 (P-10):1999 (RA 2019)
6.	Total Hydrocarbon (as CH_4)	0.10	--	$\mu g/m^3$	IS 5182 (P-17):1979 (RA 2019)
7.	Volatile Organic Carbon (as BTX)	0.35	--	$\mu g/m^3$	IS 5182 (P-11):2006 (RA 2017)

Note: BDL – Below Detection Limit

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- The results enlisted refer only to the above sample and applicable parameters endorsement of products is neither inferred nor implied.
- Samples will be destroyed after 15 days from the date of issuing of analysis of report unless otherwise specified.

Harshita
(Harshita)
Review By

Seal

Saurabh
(Saurabh Sharma)
Authorized Signatory

*** END OF REPORT ***

Ambient Air Quality Monitoring Report

Name & Address of the Customer :	Report No. : MSK/2024-25/00062
"M/s OIL INDIA LIMITED", Duliajan, Dibrugarh, Assam-786602	Report Date : 30.05.2024 Sample Description : Ambient Air Sample Number : MSKGL/ED/2024-25/05/00872 **Sampling Location : OCS KATHALGURI** Instrument ID : RDS 221-DTJ-2016/ FDS 94-DTL-2021
Ref. No.:W.O. NO.- 8129283 of Contract No. 6119277	GPS Reading : N 27°20'43", E 95°27'39"

Date of Sampling	Sample Received Date	Analysis Start Date	Analysis Complete Date
06.04.2024	09.04.2024	09.04.2024	16.04.2024

Enviromental Conditions During Sampling & Transport Condition :Temperature : 26°C, Rain fall : NO

Analysis Result

Sl. No.	Test Parameter	Method	Unit	Results	CPCB Limit
1.	Particulate Matter (PM_{10})	IS : 5182 (Part-23)-2006	(µg/m3)	62.2	100
2.	Particulate Matter ($PM_{2.5}$)	IS : 5182 (Part-24)	(µg/m3)	31.1	60
3.	Sulphur Dioxide (SO_2)	IS : 5182 (Part-2)-2001	(µg/m3)	8.1	80
4.	Nitrogen Dioxide (NO_2)	IS : 5182 (Part-6)-2006	(µg/m3)	24.1	80
5.	Carbon Monoxide (CO)	IS 5182 : (Part-10) :1999	(mg/m3)	0.74	2
6.	Ozone (O_3)	IS:5182 (Part-IX)-1974 Reaffirmed-2019	(µg/m3)	23.5	180
7.	Ammonia (NH_3)	IS 5182 (Part 25) : 2018	(µg/m3)	11.7	400
8.	Lead (Pb)	USEPA IO-3.4	(µg/m3)	<0.01	1
9.	Nickel (Ni)	USEPA IO-3.4	(ng/m3)	<5.0	20
10.	Arsenic (As)	USEPA IO-3.4	(ng/m3)	<1.0	6
11.	Benzene (C_6H_6)	IS 5182 : (Part 11) :2006	(µg/m3)	<4.2	5
12.	Benzo(a)Pyrene (BaP)	IS 5182 : (Part 12) :2004	(ng/m3)	<0.5	1
13.	Mercury (Hg)	USEPA IO-5.0	(µg/m3)	<0.002	...
14.	Methane (Hydrocarbon)	IS 5182 : (Part 17)	ppm	1.92	...
15.	Non-methane (Hydrocarbon)	IS 5182 : (Part 17)	ppm	<0.5	...
16.	Total Hydrocarbon	IS 5182 : (Part 17)	ppm	1.92	...
17.	Volatile Organic Compounds (VOC)	IS 5182 : (PART-11):2006	(µg/m3)	<4.2	...

Limit as per CPCB notification, New Delhi, 18th Nov, 2009. for Ambient air quality

Analyzed By:

Signature :
Name : Mr. Dipankar Mazumdar
Designation. : Executive Chemist

Prepared By:

Signature :
Name : Mr.Gaurav Gogoi
Designation. : Office Assistant

Authorized Signatory
For Mitra S.K. Private Limited

Signature :
Name : Mr. Rajib Roy
Designation : Branch Manager

- *The results relate only to the item(s) tested.*
- *This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.*
- *Our Lab is Approved by NABL & MOEF, Lab Address :P-48 Udayan Industrial Estate,3 Pagladanga Road Kol-700015*

Ambient Air Quality Monitoring Report

Name & Address of the Customer :	Report No. : MSK/2024-25/00054
	Report Date : 30.05.2024
"M/s OIL INDIA LIMITED",	Sample Description : Ambient Air
Duliajan, Dibrugarh, Assam-786602	Sample Number : MSKGL/ED/2024-25/05/00864
	Sampling Location : OCS JORAJAN
	Instrument ID : RDS 1317-DTK-2008/ FDS 92-DTL-2021
Ref. No.:W.O. NO.- 8129283 of Contract No. 6119277	GPS Reading : N 27°20'43", E 95°27'39"

Date of Sampling	Sample Received Date	Analysis Start Date	Analysis Complete Date
05.04.2024	08.04.2024	08.04.2024	15.04.2024

Enviromental Conditions During Sampling & Transport Condition :Temperature : 30°C, Rain fall : NO

Analysis Result

Sl. No.	Test Parameter	Method	Unit	Results	CPCB Limit
1.	Particulate Matter (PM_{10})	IS : 5182 (Part-23)-2006	(µg/m3)	66.8	100
2.	Particulate Matter ($PM_{2.5}$)	IS : 5182 (Part-24)	(µg/m3)	39.3	60
3.	Sulphur Dioxide (SO_2)	IS : 5182 (Part-2)-2001	(µg/m3)	7.3	80
4.	Nitrogen Dioxide (NO_2)	IS : 5182 (Part-6)-2006	(µg/m3)	23.2	80
5.	Carbon Monoxide (CO)	IS 5182 : (Part-10) :1999	(mg/m3)	0.86	2
6.	Ozone (O_3)	IS:5182 (Part-IX)-1974 Reaffirmed-2019	(µg/m3)	25.3	180
7.	Ammonia (NH_3)	IS 5182 (Part 25) : 2018	(µg/m3)	12.6	400
8.	Lead (Pb)	USEPA IO-3.4	(µg/m3)	<0.01	1
9.	Nickel (Ni)	USEPA IO-3.4	(ng/m3)	<5.0	20
10.	Arsenic (As)	USEPA IO-3.4	(ng/m3)	<1.0	6
11.	Benzene (C_6H_6)	IS 5182 : (Part 11) :2006	(µg/m3)	<4.2	5
12.	Benzo(a)Pyrene (BaP)	IS 5182 : (Part 12) :2004	(ng/m3)	<0.5	1
13.	Mercury (Hg)	USEPA IO-5.0	(µg/m3)	<0.002	...
14.	Methane (Hydrocarbon)	IS 5182 : (Part 17)	ppm	1.98	...
15.	Non-methane (Hydrocarbon)	IS 5182 : (Part 17)	ppm	<0.5	...
16.	Total Hydrocarbon	IS 5182 : (Part 17)	ppm	1.98	...
17.	Volatile Organic Compounds (VOC)	IS 5182 : (PART-11):2006	(µg/m3)	<4.2	...

Limit as per CPCB notification, New Delhi, 18th Nov, 2009. for Ambient air quality

Analyzed By:
Signature :
Name : Mr. Dipankar Mazumdar
Designation. : Executive Chemist

Prepared By:
Signature :
Name : Mr. Gaurav Gogoi
Designation. : Office Assistant

Authorized Signatory
For **Mitra S.K. Private Limited**
Signature :
Name : Mr. Rajib Roy
Designation : Branch Manager

- *The results relate only to the item(s) tested.*
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- *Our Lab is Approved by NABL & MOEF, Lab Address :P-48 Udayan Industrial Estate,3 Pagladanga Road Kol-700015*

Head Office: Shrachi Centre (5th floor), 74B, A.J.C. Bose Road, Kolkata - 700 016. West Bengal, India.
Tel. : 91 33 40143000 / 22650006 / 22650007 Fax : 91 33 22650008
Email : info@mitrask.com. Website: www.mitrask.com

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FORM - X

RAJASTHAN STATE POLLUTION CONTROL BOARD

REPORT OF THE STATE BOARD ANALYST

(See Rule - 10)

Report No. : **982**

Report On : **24/06/2024**

I hereby certify that I **Dr. Narain Bhoot**, State Board Analyst duly appointed **under sub Section(2) of Section 29 of the Air (Prevention & Control of Pollution) Act, 1981** received on the **24/06/2024** from **Harish Parihar, JSO, Balotra ,RSPCB Balotra** a sample of **Ambient Air Quality** of **M/S Vedanta Limited, Cairn Oil and Gas(Old Name Cairn India Limited (Aishwariya Field)) , Plant - , , Tehsil- Barmer , District- Barmer** Collected from **Ambient Air Quality Monitoring of Aishwarya well pad no.-08** Collected on **23/06/2024**. The Sample was in a condition fit for analysis as reported below :-

I further certify that I have analyzed the aforementioned sample on **24/06/2024** and declare the result of the analysis to be as below :-

S. No.	Parameters	Result
1	Nitrogen Dioxide as NO2 µg/M3	12.72
2	Particulate Matter (PM10) µg/m3	248
3	Sulphur Dioxide as SO2 ug/m3	3.73

The condition of the seals, fastening and container on receipt was as follows : **Intact**

Signed This On **24/06/2024**

Dr. Narain Bhoot

BOARD ANALYST

Rajasthan State Pollution Control Board

Regional Office Balotra

Regional office,Rajasthan state pollution control Board,Jasol phanta,OppJDVVNL office,Jasol Road Balotra,District -Balotra

Phone: 9667576064

Fax: 9667576064

Signature Not Verified

Digitally signed by Narain Bhoot
Date: 2024.06.24 15:31:47 IST
Reason: SelfAttested
Location:

FORM - X

RAJASTHAN STATE POLLUTION CONTROL BOARD

REPORT OF THE STATE BOARD ANALYST

(See Rule - 10)

Report No. : **983**

Report On : **24/06/2024**

I hereby certify that I **Dr. Narain Bhoot**, State Board Analyst duly appointed **under sub Section(2) of Section 29 of the Air (Prevention & Control of Pollution) Act, 1981** received on the **24/06/2024** from **Harish Parihar, JSO, Balotra ,RSPCB Balotra** a sample of **Ambient Air Quality** of **M/S Vedanta Limited, Cairn Oil and Gas(Old Name Cairn India Limited (Aishwariya Field)) , Plant - , , Tehsil- Barmer , District- Barmer** Collected from **Ambient Air Quality Monitoring of Aishwarya well pad no.-NA 01** Collected on **23/06/2024**. The Sample was in a condition fit for analysis as reported below :-

I further certify that I have analyzed the aforementioned sample on **24/06/2024** and declare the result of the analysis to be as below :-

S. No.	Parameters	Result
1	Nitrogen Dioxide as NO2 µg/M3	16.72
2	Particulate Matter (PM10) µg/m3	157
3	Sulphur Dioxide as SO2 ug/m3	3.71

The condition of the seals, fastening and container on receipt was as follows : **Intact**

Signed This On **24/06/2024**

Dr. Narain Bhoot

BOARD ANALYST

Rajasthan State Pollution Control Board

Regional Office Balotra

Regional office,Rajasthan state pollution control Board,Jasol phanta,OppJDVVNL office,Jasol Road Balotra,District -Balotra

Phone: 9667576064

Fax: 9667576064

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FORM - X

RAJASTHAN STATE POLLUTION CONTROL BOARD

REPORT OF THE STATE BOARD ANALYST

(See Rule - 10)

Report No. : **984**

Report On : **24/06/2024**

I hereby certify that I **Dr. Narain Bhoot**, State Board Analyst duly appointed **under sub Section(2) of Section 29 of the Air (Prevention & Control of Pollution) Act, 1981** received on the **24/06/2024** from **Harish Parihar, JSO, Balotra ,RSPCB Balotra** a sample of **Ambient Air Quality** of **M/S Vedanta Limited, Cairn Oil and Gas(Old Name Cairn India Limited (Aishwariya Field)) , Plant - , , Tehsil- Barmer , District- Barmer** Collected from **Ambient Air Quality Monitoring of Aishwarya well pad no.-06** Collected on **23/06/2024**. The Sample was in a condition fit for analysis as reported below :-

I further certify that I have analyzed the aforementioned sample on **24/06/2024** and declare the result of the analysis to be as below :-

S. No.	Parameters	Result
1	Nitrogen Dioxide as NO2 µg/M3	14.87
2	Particulate Matter (PM10) µg/m3	220
3	Sulphur Dioxide as SO2 ug/m3	3.84

The condition of the seals, fastening and container on receipt was as follows : **Intact**

Signed This On **24/06/2024**

Dr. Narain Bhoot

BOARD ANALYST

Rajasthan State Pollution Control Board

Regional Office Balotra

Regional office,Rajasthan state pollution control Board,Jasol phanta,OppJDVVNL office,Jasol Road Balotra,District -Balotra

Phone: 9667576064

Fax: 9667576064

Test Report No.: A231202C -13.

MANTEC ENVIRONMENTAL LABORATORY
{Recognized by MoEF&CC-Govt. of India}
D-36, SECTOR-VI, NOIDA, District-Gautam Budh Nagar, U. P.
Ph.0120-4215000, 4215805, Fax, 0120-4215809, e-mail :manteclab@gmail.com

Sample Identification	:	A231202 13
Name & Address of the Customer	:	M/s Oil & Nature Gas Corporation Ltd. Environmental Monitoring Around Surface Installations of Nazira (Assam)
Start Date & Time of Sampling	:	20.11.2023, 09:55 AM
End Date & Time of Sampling	:	21.11.2023, 09:55 AM
Date of Receipt	:	02.12.2023
Sample Description	:	Ambient Air
Sample Condition	:	OK
Start Date of Analysis	:	02.12.2023
End Date of Analysis	:	08.12.2023
Date of Reporting	:	08.12.2023
Sampling Location	:	Demulgaon GGS-1
Sample Submitted by	:	Md. Danish Alam & Mr. Ankit Kumar Tiwari
Environmental Condition at Lab	:	Temp. 25 ± 2 °C Humidity 50 ± 10 %
Ref. of Sampling Procedure No.	:	MEL/MSP/7.3/P-01

TEST RESULTS

Sl. No.	Parameter	Units of Measurements	Value	Prescribed Limits	Protocol
1.	RPM	µg/m³	68	100	IS 5182(Part-23):2022
2.	PM_{10}	µg/m³	68	100	IS 5182(Part-23):2022
3.	$PM_{2.5}$	µg/m³	16	60	IS 5182(Part-24):2019
4.	SO_2	µg/m³	12	80	IS 5182(Part-2):2022
5.	NO_2	µg/m³	16	80	IS 5182(Part-6):2022
6.	NH_3	µg/m³	23	400	IS 5182(Part-25):2018
7.	O_3	µg/m³	6.0	100(8 hours)	IS 5182(Part-09):2019
8.	CO	mg/m³	0.64	02	IS 5182(Part-10):2019 NDIR spectroscopy
9.	C_6H_6	µg/m³	BDL#	05	IS 5182(Part-11):2017
10.	B(a)P	ng/m³	BDL#	01	IS 5182(Part-12):2019
11.	Pb	µg/m³	BDL#	01	IS 5182(Part-22):2019
12.	Ni	ng/m³	BDL#	20	IS 5182(Part-26):2020
13.	As	ng/m³	BDL#	06	CPCB Guidelines Vol. I,2011
14.	HC	ppm	0.06	----	IS 5182(Part-17):2019 (Gas Chromatograph)
15.	VOC	µg/m³	4.5	----	T017-USEPA

#Below Detection Limit

Manoranjan
Analyzed by:

Seal of Lab:

Gaja Nand Mallick
Quality Manager:

Notes:

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- The samples received shall be destroyed after two weeks from the date of issue of the Test Report unless specified otherwise.
- This Test Report shall not be used in any advertising media or as evidence in the court of Law without prior written consent of the laboratory.

****End of Report****

Test Report No.: W231202C -12.

MANTEC ENVIRONMENTAL LABORATORY
{Recognized by MoEF&CC-Govt. of India}
D-36, SECTOR-VI, NOIDA, District-Gautam Budh Nagar, U. P.
Ph.0120-4215000, 4215805, Fax, 0120-4215809, e-mail :manteclab@gmail.com

Sample Identification No.	:	**W231202 12**
Name & Address of the Customer	:	**M/s Oil & Nature Gas Corporation Ltd. Environmental Monitoring Around Surface Installations of Nazira (Assam)**
Date of Sampling	:	**30.11.2023**
Date of Receipt	:	**02.12.2023**
Sample Description	:	**Ground Water**
Sample Condition	:	**Ok**
Start Date of Analysis	:	**02.12.2023**
End Date of Analysis	:	**08.12.2023**
Date of Reporting	:	**08.12.2023**
Sampling Location	:	**Demulgaon GGS-1**
Sample Collected By	:	**Md. Danish Alam & Mr. Ankit Kumar Tiwari**
Environmental Condition at Lab	:	**Temp. 25 ± 2 °C Humidity 50 ± 10 %**
Ref. of Sampling Procedure No.	:	**MEL/MSP/7.3/P-01**

TEST RESULTS

Sl. No.	Parameters	Units	Value	Acceptable Limit	Permissible Limit	Test Method
1.	pH	-	6.68	6.5-8.5	No Relaxation	IS 3025 (Part-11):2022
2.	Temperature	°C	21	---	---	IS 3025 (Part-9):2017
3.	Conductivity	µmhos/cm	294	---	---	IS 3025 (Part-14):2019
4.	Total Dissolved Solids	mg/l	191	500	2000	IS 3025 (Part-16):2017
5.	P-Alkalinity	mg/l	000	200	600	IS 3025 (Part-23):2019
6.	M-1 Alkalinity	mg/l	000	200	600	IS 3025 (Part-23):2019
7.	Total Hardness as $CaCO_3$	mg/l	102.0	200	600	IS 3025 (Part-21):2019
8.	Calcium as Ca	mg/l	28	75	200	IS 3025 (Part-40):2019
9.	Magnesium as Mg	mg/l	7.77	30	100	IS 3025 (Part-46):2019
10.	Chloride as Cl	mg/l	18	250	1000	IS 3025 (Part-32):2019
11.	Phosphate as PO_4	mg/l	0.28	----	----	IS 3025 (Part-31):2021
12.	Nitrate as NO_3	mg/l	2.60	45	No Relaxation	IS 3025 (Part-34):2019
13.	Sulphate as SO_4	mg/l	28.00	200	400	IS 3025 (Part-24):2019
14.	Fluoride as F	mg/l	0.46	<1.0	1.5	IS 3025 (Part-60):2019
15.	Phenolic Compound	mg/l	<0.001	0.001	0.002	IS 3025 (Part-43):2019
16.	Oil & Grease	mg/l	<0.4	----	----	IS 3025 (Part-39):2021
17.	Total Arsenic as As	mg/l	<0.01	0.01	0.05	IS 3025 (Part-2):2019
18.	Nickel as Ni	mg/l	<0.005	0.02	No Relaxation	IS 3025(Part-2):2019
19.	Zinc as Zn	mg/l	<0.02	5	15	IS 3025(Part-2):2019
20.	Lead as Pb	mg/l	<0.01	0.01	No Relaxation	IS 3025 (Part-2):2019
21.	Total Chromium as Cr	mg/l	<0.05	0.05	No Relaxation	IS 3025(Part-2):2019
22.	Copper as Cu	mg/l	<0.01	0.05	1.5	IS 3025(Part-2):2019
23.	Cadmium as Cd	mg/l	<0.001	0.003	No Relaxation	IS 3025(Part-2):2019
24.	Iron as Fe	mg/l	0.12	0.3	No Relaxation	IS 3025(Part-2):2019

Test Report No.: W231202C -12.

25.	Mercury	mg/l	<0.0005	0.001	No Relaxation	IS 3025 (Part-48):2019
26.	COD	mg/l	<5	----	----	IS 3025(Part-58):2017

Ajmal Husain
Analyzed by:

Marine Environmental Laboratory NOIDA
Seal of Lab:

Gaja Nand Mallick
Quality Manager:

Notes:

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

Test Report No.: S231202C -30.

MANTEC ENVIRONMENTAL LABORATORY
{Recognized by MoEF&CC-Govt. of India}
D-36, SECTOR-VI, NOIDA, District-Gautam Budh Nagar, U. P.
Ph.0120-4215000, 4215805, Fax, 0120-4215809, e-mail :manteclab@gmail.com

Sample Identification No.	:	**S231202 30**
Name & Address of the Customer	:	**M/s Oil & Nature Gas Corporation Ltd. Environmental Monitoring Around Surface Installations of Nazira (Assam)**
Date of Sampling	:	**20.11.2023**
Date of Receipt	:	**02.12.2023**
Sample Description	:	**D.G.Set-1 380 KVA**
Sample Condition	:	**Ok**
Start Date of Analysis	:	**02.12.2023**
End Date of Analysis	:	**08.12.2023**
Date of Reporting	:	**08.12.2023**
Sampling Location	:	**Demulgaon GGS-1**
Sample Collected By	:	**Md. Danish Alam & Mr. Ankit Kumar Tiwari**
Environmental Condition at Lab	:	**Temp. 25 ± 2 °C Humidity 50 ± 10 %**
Ref. of Sampling Procedure No.	:	**MEL/MSP/7.3/P-01**

STACK DESCRIPTION

Name of the Emission Sources Monitored	:	**Stack**
Stack Identification/Stack Details	:	**Stack attached to DG Set**
Normal Operating Schedule	:	**1 Hr.**

TEST RESULTS

Sl. No.	Parameter	Units of Measurements	Results	Protocol
1.	PM(at 15% O_2)	mg/Nm^3	18	IS 11255(Part-1):2019
2.	NOx(as NO_2) at 15% O_2	mg/Nm^3	37	IS 11255(Part-7):2022
3.	NO_x (Dry basis)	ppmv	16	IS 11255(Part-7):2022
4.	NMHC (as C) at 15% O_2	%v/v	88	IS 11255(Part-15):2019
5	CO(at 15% O_2)	mg/Nm^3	10	IS 13270:2019

Prabhat Ranjan Dutta
Analyzed by:

Seal of Lab:

Gaja Nand Mallick
Quality Manager:

Notes:

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

Test Report No.: S231202C -31.

MANTEC ENVIRONMENTAL LABORATORY
{Recognized by MoEF&CC-Govt. of India}
D-36, SECTOR-VI, NOIDA, District-Gautam Budh Nagar, U. P.
Ph.0120-4215000, 4215805, Fax, 0120-4215809, e-mail :manteclab@gmail.com

Sample Identification No.	:	S231202 31
Name & Address of the Customer	:	M/s Oil & Nature Gas Corporation Ltd. Environmental Monitoring Around Surface Installations of Nazira (Assam)
Date of Sampling	:	20.11.2023
Date of Receipt	:	02.12.2023
Sample Description	:	Diesel Fire Water Pump
Sample Condition	:	Ok
Start Date of Analysis	:	02.12.2023
End Date of Analysis	:	08.12.2023
Date of Reporting	:	08.12.2023
Sampling Location	:	Demulgaon GGS-1
Sample Collected By	:	Md. Danish Alam & Mr. Ankit Kumar Tiwari
Environmental Condition at Lab	:	Temp. 25 ± 2 °C Humidity 50 ± 10 %
Ref. of Sampling Procedure No.	:	MEL/MSP/7.3/P-01

STACK DESCRIPTION

Name of the Emission Sources Monitored	:	Stack
Stack Identification/Stack Details	:	Stack attached to Diesel Fire Water Pump
Normal Operating Schedule	:	1 Hr.

TEST RESULTS

Sl. No.	Parameter	Units of Measurements	Results	Protocol
1.	PM(at 15% O_2)	mg/Nm^3	20	IS 11255(Part-1):2019
2.	NOx(as NO_2) at 15% O_2	mg/Nm^3	42	IS 11255(Part-7):2022
3.	NO_x (Dry basis)	ppmv	18	IS 11255(Part-7):2022
4.	NMHC (as C) at 15% O_2	%v/v	16	IS 11255(Part-15):2019
5	CO(at 15% O_2)	mg/Nm^3	83	IS 13270:2019

Prabhat Ranjan Dutta
Analyzed by:

Seal of Lab: Mantec Environmental Laboratory NOIDA

Gaja Nand Mallick
Quality Manager:

Notes:

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

Test Report No.: S231202C -32.

MANTEC ENVIRONMENTAL LABORATORY
{Recognized by MoEF&CC-Govt. of India}
D-36, SECTOR-VI, NOIDA, District-Gautam Budh Nagar, U. P.
Ph.0120-4215000, 4215805, Fax, 0120-4215809, e-mail :manteclab@gmail.com

Sample Identification No.	:	S231202 32
Name & Address of the Customer	:	M/s Oil & Nature Gas Corporation Ltd. Environmental Monitoring Around Surface Installations of Nazira (Assam)
Date of Sampling	:	20.11.2023
Date of Receipt	:	02.12.2023
Sample Description	:	Heater Treater
Sample Condition	:	Ok
Start Date of Analysis	:	02.12.2023
End Date of Analysis	:	08.12.2023
Date of Reporting	:	08.12.2023
Sampling Location	:	Demulgaon GGS-1
Sample Collected By	:	Md. Danish Alam & Mr. Ankit Kumar Tiwari
Environmental Condition at Lab	:	Temp. 25 ± 2 °C Humidity 50 ± 10 %
Ref. of Sampling Procedure No.	:	MEL/MSP/7.3/P-01

STACK DESCRIPTION

Name of the Emission Sources Monitored	:	Stack
Stack Identification/Stack Details	:	Stack attached to Heater Treater
Normal Operating Schedule	:	1 Hr.

TEST RESULTS

Sl. No	Parameter	Units of Measurements	Results	Protocol
1.	PM(at 15% O_2)	mg/Nm^3	24	IS 11255(Part-1):2019
2.	NOx(as NO_2) at 15% O_2	mg/Nm^3	37	IS 11255(Part-7):2022
3.	NO_x (Dry basis)	ppmv	14	IS 11255(Part-7):2022
4.	NMHC (as C) at 15% O_2	%v/v	14.3	IS 11255(Part-15):2019
5	CO(at 15% O_2)	mg/Nm^3	81.7	IS 13270:2019

Prabhat Ranjan Dutta
Analyzed by:

Seal of Lab: Mantec Environmental Laboratory NOIDA

Gaja Nand Mallick
Quality Manager:

Notes:

- The results relate only to the sample tested.
- This Test Report shall not be reproduced wholly or in part without prior written consent of the laboratory.
- The samples received shall be destroyed after two weeks from the date of issue of the Test Report unless specified otherwise.
- This Test Report shall not be used in any advertising media or as evidence in the court of Law without prior written consent of the laboratory.

****End of Report****

Test Report No.: S231202C -33.

MANTEC ENVIRONMENTAL LABORATORY
{Recognized by MoEF&CC-Govt. of India}
D-36, SECTOR-VI, NOIDA, District-Gautam Budh Nagar, U. P.
Ph.0120-4215000, 4215805, Fax, 0120-4215809, e-mail :manteclab@gmail.com

Sample Identification No.	:	S231202 33
Name & Address of the Customer	:	M/s Oil & Nature Gas Corporation Ltd. Environmental Monitoring Around Surface Installations of Nazira (Assam)
Date of Sampling	:	20.11.2023
Date of Receipt	:	02.12.2023
Sample Description	:	Bath Heater
Sample Condition	:	Ok
Start Date of Analysis	:	02.12.2023
End Date of Analysis	:	08.12.2023
Date of Reporting	:	08.12.2023
Sampling Location	:	Demulgaon GGS-1
Sample Collected By	:	Md. Danish Alam & Mr. Ankit Kumar Tiwari
Environmental Condition at Lab	:	Temp. 25 ± 2 °C Humidity 50 ± 10 %
Ref. of Sampling Procedure No.	:	MEL/MSP/7.3/P-01

STACK DESCRIPTION

Name of the Emission Sources Monitored	:	Stack
Stack Identification/Stack Details	:	Stack attached to Bath Heater
Normal Operating Schedule	:	1 Hr.

TEST RESULTS

Sl. No	Parameter	Units of Measurements	Results	Protocol
1.	PM(at 15% O_2)	mg/Nm^3	28	IS 11255(Part-1):2019
2.	NOx(as NO_2) at 15% O_2	mg/Nm^3	42	IS 11255(Part-7):2022
3.	NO_x (Dry basis)	ppmv	17	IS 11255(Part-7):2022
4.	NMHC (as C) at 15% O_2	%v/v	14.6	IS 11255(Part-15):2019
5	CO(at 15% O_2)	mg/Nm^3	82.7	IS 13270:2019

Prabhat Ranjan Dutta
Analyzed by:

Seal of Lab:

Gaja Nand Mallick
Quality Manager:

Notes:

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

Test Report No.: A231202C -14.

MANTEC ENVIRONMENTAL LABORATORY
{Recognized by MoEF&CC-Govt. of India}
D-36, SECTOR-VI, NOIDA, District-Gautam Budh Nagar, U. P.
Ph.0120-4215000, 4215805, Fax, 0120-4215809, e-mail :manteclab@gmail.com

Sample Identification	:	A231202 14
Name & Address of the Customer	:	M/s Oil & Nature Gas Corporation Ltd. Environmental Monitoring Around Surface Installations of Nazira (Assam)
Start Date & Time of Sampling	:	21.11.2023, 10:05 AM
End Date & Time of Sampling	:	22.11.2023, 10:05 AM
Date of Receipt	:	02.12.2023
Sample Description	:	Ambient Air
Sample Condition	:	OK
Start Date of Analysis	:	02.12.2023
End Date of Analysis	:	08.12.2023
Date of Reporting	:	08.12.2023
Sampling Location	:	Lakhmani GGS-4
Sample Submitted by	:	Md. Danish Alam & Mr. Ankit Kumar Tiwari
Environmental Condition at Lab	:	Temp. 25 ± 2 °C Humidity 50 ± 10 %
Ref. of Sampling Procedure No.	:	MEL/MSP/7.3/P-01

TEST RESULTS

Sl.No.	Parameter	Units of Measurements	Value	Prescribed Limits	Protocol
1.	RPM	µg/m³	64	100	IS 5182(Part-23):2022
2.	PM_{10}	µg/m³	64	100	IS 5182(Part-23):2022
3.	$PM_{2.5}$	µg/m³	17	60	IS 5182(Part-24):2019
4.	SO_2	µg/m³	11	80	IS 5182(Part-2):2022
5.	NO_2	µg/m³	13	80	IS 5182(Part-6):2022
6.	NH_3	µg/m³	36	400	IS 5182(Part-25):2018
7.	O_3	µg/m³	10	100(8 hours)	IS 5182(Part-09):2019
8.	CO	mg/m³	0.58	02	IS 5182(Part-10):2019 NDIR spectroscopy
9.	C_6H_6	µg/m³	3.7	05	IS 5182(Part-11):2017
10.	B(a)P	ng/m³	BDL#	01	IS 5182(Part-12):2019
11.	Pb	µg/m³	BDL#	01	IS 5182(Part-22):2019
12.	Ni	ng/m³	BDL#	20	IS 5182(Part-26):2020
13.	As	ng/m³	BDL#	06	CPCB Guidelines Vol. I,2011
14.	HC	ppm	0.06	----	IS 5182(Part-17):2019 (Gas Chromatograph)
15.	VOC	µg/m³	6.1	----	T017-USEPA

#Below Detection Limit

Manoranjan
Analyzed by:

Seal of Lab:

Gaja Nand Mallick
Quality Manager:

Notes:

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

Test Report No.: S231202C -34.

MANTEC ENVIRONMENTAL LABORATORY
{Recognized by MoEF&CC-Govt. of India}
D-36, SECTOR-VI, NOIDA, District-Gautam Budh Nagar, U. P.
Ph.0120-4215000, 4215805, Fax, 0120-4215809, e-mail :manteclab@gmail.com

Sample Identification No.	:	S231202 34
Name & Address of the Customer	:	M/s Oil & Nature Gas Corporation Ltd. Environmental Monitoring Around Surface Installations of Nazira (Assam)
Date of Sampling	:	21.11.2023
Date of Receipt	:	02.12.2023
Sample Description	:	D.G.Set 625 KVA
Sample Condition	:	Ok
Start Date of Analysis	:	02.12.2023
End Date of Analysis	:	08.12.2023
Date of Reporting	:	08.12.2023
Sampling Location	:	Lakhmani GGS-4
Sample Collected By	:	Md. Danish Alam & Mr. Ankit Kumar Tiwari
Environmental Condition at Lab	:	Temp. 25 ± 2 °C Humidity 50 ± 10 %
Ref. of Sampling Procedure No.	:	MEL/MSP/7.3/P-01

STACK DESCRIPTION

Name of the Emission Sources Monitored	:	Stack
Stack Identification/Stack Details	:	Stack attached to DG Set
Normal Operating Schedule	:	1 Hr.

TEST RESULTS

Sl. No	Parameter	Units of Measurements	Results	Protocol
1.	PM(at 15% O_2)	mg/Nm^3	18	IS 11255(Part-1):2019
2.	NOx(as NO_2) at 15% O_2	mg/Nm^3	43	IS 11255(Part-7):2022
3.	NO_x (Dry basis)	ppmv	22	IS 11255(Part-7):2022
4.	NMHC (as C) at 15% O_2	%v/v	16	IS 11255(Part-15):2019
5	CO(at 15% O_2)	mg/Nm^3	101.4	IS 13270:2019

Prabhat

Prabhat Ranjan Dutta
Analyzed by:

Mantec Environmental Laboratory NOIDA

Seal of Lab:

Gaja Nand Mallick
Quality Manager:

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****End of Report****

Test Report No.: S231202C -35.

MANTEC ENVIRONMENTAL LABORATORY
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D-36, SECTOR-VI, NOIDA, District-Gautam Budh Nagar, U. P.
Ph.0120-4215000, 4215805, Fax, 0120-4215809, e-mail :manteclab@gmail.com

Sample Identification No.	:	S231202 35
Name & Address of the Customer	:	M/s Oil & Nature Gas Corporation Ltd. Environmental Monitoring Around Surface Installations of Nazira (Assam)
Date of Sampling	:	21.11.2023
Date of Receipt	:	02.12.2023
Sample Description	:	Diesel Fire Water Pump
Sample Condition	:	Ok
Start Date of Analysis	:	02.12.2023
End Date of Analysis	:	08.12.2023
Date of Reporting	:	08.12.2023
Sampling Location	:	Lakhmani GGS-4
Sample Collected By	:	Md. Danish Alam & Mr. Ankit Kumar Tiwari
Environmental Condition at Lab	:	Temp. 25 ± 2 °C Humidity 50 ± 10 %
Ref. of Sampling Procedure No.	:	MEL/MSP/7.3/P-01

STACK DESCRIPTION

Name of the Emission Sources Monitored	:	Stack
Stack Identification/Stack Details	:	Stack attached to Diesel Fire Water Pump
Normal Operating Schedule	:	1 Hr.

TEST RESULTS

Sl. No	Parameter	Units of Measurements	Results	Protocol
1.	PM(at 15% O_2)	mg/Nm^3	20	IS 11255(Part-1):2019
2.	NOx(as NO_2) at 15% O_2	mg/Nm^3	38	IS 11255(Part-7):2022
3.	NO_x (Dry basis)	ppmv	16	IS 11255(Part-7):2022
4.	NMHC (as C) at 15% O_2	%v/v	15.2	IS 11255(Part-15):2019
5	CO(at 15% O_2)	mg/Nm^3	92	IS 13270:2019

Prabhat Ranjan Dutta
Analyzed by:

Seal of Lab:

Gaja Nand Mallick
Quality Manager:

Notes:

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****End of Report****

Test Report No.: S231202C -36.

MANTEC ENVIRONMENTAL LABORATORY
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D-36, SECTOR-VI, NOIDA, District-Gautam Budh Nagar, U. P.
Ph.0120-4215000, 4215805, Fax, 0120-4215809, e-mail :manteclab@gmail.com

Sample Identification No.	:	S231202 36
Name & Address of the Customer	:	M/s Oil & Nature Gas Corporation Ltd. Environmental Monitoring Around Surface Installations of Nazira (Assam)
Date of Sampling	:	21.11.2023
Date of Receipt	:	02.12.2023
Sample Description	:	Heater Treater
Sample Condition	:	Ok
Start Date of Analysis	:	02.12.2023
End Date of Analysis	:	08.12.2023
Date of Reporting	:	08.12.2023
Sampling Location	:	Lakhmani GGS-4
Sample Collected By	:	Md. Danish Alam & Mr. Ankit Kumar Tiwari
Environmental Condition at Lab	:	Temp. 25 ± 2 °C Humidity 50 ± 10 %
Ref. of Sampling Procedure No.	:	MEL/MSP/7.3/P-01

STACK DESCRIPTION

Name of the Emission Sources Monitored	:	Stack
Stack Identification/Stack Details	:	Stack attached to Heater Treater
Normal Operating Schedule	:	1 Hr.

TEST RESULTS

Sl. No	Parameter	Units of Measurements	Results	Protocol
1.	PM(at 15% O_2)	mg/Nm^3	10	IS 11255(Part-1):2019
2.	NOx(as NO_2) at 15% O_2	mg/Nm^3	12	IS 11255(Part-7):2022
3.	NO_x (Dry basis)	ppmv	7	IS 11255(Part-7):2022
4.	NMHC (as C) at 15% O_2	%v/v	15.2	IS 11255(Part-15):2019
5	CO(at 15% O_2)	mg/Nm^3	13.6	IS 13270:2019

Prabhat

Prabhat Ranjan Dutta
Analyzed by:

Mantec Environmental Laboratory NOIDA

Seal of Lab:

Gaja Nand Mallick
Quality Manager:

Notes:

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

Test Report No.: A231202C -15.

MANTEC ENVIRONMENTAL LABORATORY
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D-36, SECTOR-VI, NOIDA, District-Gautam Budh Nagar, U. P.
Ph.0120-4215000, 4215805, Fax, 0120-4215809, e-mail :manteclab@gmail.com

Sample Identification	:	A231202 15
Name & Address of the Customer	:	M/s Oil & Nature Gas Corporation Ltd. Environmental Monitoring Around Surface Installations of Nazira (Assam)
Start Date & Time of Sampling	:	20.11.2023, 09:55 AM
End Date & Time of Sampling	:	21.11.2023, 09:55 AM
Date of Receipt	:	02.12.2023
Sample Description	:	Ambient Air
Sample Condition	:	OK
Start Date of Analysis	:	02.12.2023
End Date of Analysis	:	08.12.2023
Date of Reporting	:	08.12.2023
Sampling Location	:	Lakhmani GGS-5
Sample Submitted by	:	Md. Danish Alam & Mr. Ankit Kumar Tiwari
Environmental Condition at Lab	:	Temp. 25 ± 2 °C Humidity 50 ± 10 %
Ref. of Sampling Procedure No.	:	MEL/MSP/7.3/P-01

TEST RESULTS

Sl. No.	Parameter	Units of Measurements	Value	Prescribed Limits	Protocol
1.	RPM	µg/m³	58	100	IS 5182(Part-23):2022
2.	PM_{10}	µg/m³	58	100	IS 5182(Part-23):2022
3.	$PM_{2.5}$	µg/m³	14	60	IS 5182(Part-24):2019
4.	SO_2	µg/m³	08	80	IS 5182(Part-2):2022
5.	NO_2	µg/m³	12	80	IS 5182(Part-6):2022
6.	NH_3	µg/m³	28	400	IS 5182(Part-25):2018
7.	O_3	µg/m³	08	100(8 hours)	IS 5182(Part-09):2019
8.	CO	mg/m³	0.72	02	IS 5182(Part-10):2019 NDIR spectroscopy
9.	C_6H_6	µg/m³	3.4	05	IS 5182(Part-11):2017
10.	B(a)P	ng/m³	BDL#	01	IS 5182(Part-12):2019
11.	Pb	µg/m³	BDL#	01	IS 5182(Part-22):2019
12.	Ni	ng/m³	BDL#	20	IS 5182(Part-26):2020
13.	As	ng/m³	BDL#	06	CPCB Guidelines Vol. I,2011
14.	HC	ppm	0.04	----	IS 5182(Part-17):2019 (Gas Chromatograph)
15.	VOC	µg/m³	9.5	----	T017-USEPA

#Below Detection Limit

Manoranjan
Analyzed by:

Seal of Lab:

Gaja Nand Mallick
Quality Manager:

Notes:

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

Test Report No.: W231202C -16.

25.	Mercury	mg/l	<0.0005	----	IS 3025 (Part-48):2019
26.	COD	mg/l	46	----	IS 3025(Part-58):2017

Designated Best Use	Class	
Ground Water source without conventional treatment but after disinfection	A	
Outdoor Bathing(Organized)	B	
Ground Water source after conventional treatment & disinfection	C	
Propagation of wild life & Fisheries	D	√
Irrigation, Industrial cooling, Controlled Waste Disposal	E	
	Below E	

Ajmal Husain
Analyzed by:

Seal of Lab:

Gaja Nand Mallick
Quality Manager:

Notes:

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

Annexure-XI

Item No.16 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 247/2024

News item titled "Ahemdabad Surat landfills among worst three methane hotspots in India" appearing in the Times of India dated 07.02.2024

Date of hearing: 05.07.2024

CORAM: HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON
HON'BLE MR. JUSTICE ARUN KUMAR TYAGI, JUDICIAL MEMBER
HON'BLE DR. A. SENTHIL VEL, EXPERT MEMBER

Respondent: Mr. Rajkumar, Mr. Ankit Choudhary, Mr. Sumit Choudhary, Ms. Neetu Singh, Mr. Bharat Bhushan, Ms. Vandana Sachdeva & Ms. Anamika Singh, Advs. for CPCB (Through VC)
Mr. Mukesh Verma, Adv. for MPCB (Through VC)
Mr. Maulik Nanavati, Adv. for Gujarat PCB (Through VC)
Mr. Nishant Awana & Ms. Rebecca Mishra, Advs. for RSPCB (Through VC)

ORDER

1. In this original application, Tribunal is considering the issue of emission of methane gas from landfill sites in certain cities in the States of Maharashtra, Gujarat, Rajasthan and Assam.

2. Tribunal by order dated 19.03.2024 had constituted a Joint Committee.

3. Report dated 04.07.2024 has been filed by Central Pollution Control Board (CPCB). Said report, however, neither states that it is a report by Joint Committee nor it is signed by Joint Committee, though, it refers to some of the meetings of the Joint Committee.

4. Learned Counsel for CPCB seeks time to clarify the position and file a proper report of the Joint Committee. It will also be opened to all the other respondents to file their response within four weeks.

6. Let a proper report of the Joint Committee be also filed within four weeks by giving an advance copy to Counsel for all the parties.

7. List on 27.09.2024.

Prakash Shrivastava, CP

Arun Kumar Tyagi, JM

Dr. A. Senthil Vel, EM

July 05, 2024
Original Application No. 247/2024
JG.