Reliance
Industries Limited

Vadodara Manufacturing Division

RIL/E&E/MoEFCC/24-25/136 Date: 27.11.2024

To,
SHRI SHRAWAN KUMAR VERMA, IFS (Addl. Charge)
Deputy Director General of Forests (C),
Ministry of Environment, Forest and Climate Change,
Integrated Regional Office,
Gandhi Nagar A Wing-407 & 409,
Aranya Bhawan, Near CH-3 Circle, Sector-10A,
Gandhi Nagar – 382010
iro.gandhingr-mefcc@gov.in

Sub.: Submission of Six-monthly EC compliance Report (Apr-2024 to Sep-2024).

Dear Sir,

Please find enclosed herewith six-monthly EC compliance Report (Apr-2024 to Sep-2024) for Reliance Industries Ltd. Vadodara Manufacturing Division.

We assure you that we are environmentally responsible corporate and are taking all necessary actions to protect environment beyond compliance.

Thank you,

With best regards,

Yours Sincerely,
For RIL-Vadodara Mfg. Division

(Authorized Signatory)

Encl: As above

Copy:

1) Zonal Office, CPCB, Vadodara (only softcopy by-Email)
2) Unit Head, GPCB, Gandhinagar – 382 010
3) Regional Officer, GPCB, Vadodara

Half Yearly Compliance Report
2024
01 Dec(01 Apr - 30 Sep)

Acknowledgement

Proposal Name	Expansion and Debottlenecking of Existing Petrochemical manufacturing facility at Vadodara (Gujarat) Manufacturing division (VMD) of M/s Reliance Industries Limited (RIL)-Consideration of Environmental Clearance regarding
Name of Entity / Corporate Office	Reliance Industries Ltd.
Village(s)	Dhanora
District	VADODARA

Proposal No.	IA/GJ/IND2/100410/1998
Plot / Survey / Khasra No.	
State	GUJARAT
MoEF File No.	File No. J-11011/212/2017-IA II (I)

Category	Industrial Projects - 2
Sub-District	Vadodara Rural
Entity's PAN	*****5055K
Entity name as per PAN	RELIANCE INDUSTRIES LIMITED

Compliance Reporting Details

Reporting Year 2024

Remarks (if any)

Reporting Period 01 Dec(01 Apr - 30 Sep)

Details of Production and Project Area

Name of Entity / Corporate Office Reliance Industries Ltd.

	Project Area as per EC Granted	Actual Project Area in Possession
Private	0	0
Revenue Land	0	0
Forest	0	0
Others	350	350
Total	350	350

Production Capacity

Sr. no	Product Name	units	Valid Upto	Capacity	Production last year	Capacity as per CTO
1	Propylene	Tons per Annum (TPA)	N/A	1,80,000	93,963	
2	Orthoxylene	Tons per Annum (TPA)	N/A	45,408	0	
3	Paraxylene	Tons per Annum (TPA)	N/A	48,600	0	
4	Dimethyl Terephthalate	Tons per Annum (TPA)	N/A	39,996	0	
5	Ethylene Glycol (EG)	Tons per Annum (TPA)	N/A	25,680	3,390	
6	Ethylene Oxide (EO)	Tons per Annum (TPA)	N/A	22,080	16,399	
7	Low Density Poly Ethylene (LDPE)	Tons per Annum (TPA)	N/A	1,60,020	84,446	
8	Ethylene Dichloride {EDC)	Tons per Annum (TPA)	N/A	1,00,020	57,681	
9	Vinyl Chloride Monomer (VCM)	Tons per Annum (TPA)	N/A	93,240	68,977	
10	Poly Vinyl Chloride (PVC)	Tons per Annum (TPA)	N/A	94,800	68,673	
11	Chlorinated Poly Vinyl Chloride (C-PVC) (New Product)	Tons per Annum (TPA)	N/A	72,000	0	
12	Poly Propy]ene PPCP (PP-II)	Tons per Annum (TPA)	N/A	64,080	36,820	
13	Ethylene	Tons per Annum (TPA)	N/A	3,00,000	1,65,422	
14	Poly Propy]ene (PP-IV)	Tons per Annum (TPA)	N/A	1,60,440	94,071	
15	Poly Propy]ene (PP-I)	Tons per Annum (TPA)	N/A	36,000	0	
16	Acry]onitrile	Tons per Annum (TPA)	N/A	30,000	0	
17	Methyl Acrylates	Tons per Annum (TPA)	N/A	2,040	0	
18	Ethyl Acrylates	Tons per Annum (TPA)	N/A	3,000	0	

Conditions

Specific Conditions

Sr.No.	Condition Type	Condition Details
1	Risk Mitigation and Disaster Management	The company shall comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, and risk mitigation measures relating to the project shall be implemented.
PPs Submission: Complied All the environmental protection measures and safeguards proposed in the documents submitted to the Ministry are duly complied as applicable for the debottlenecking of existing plants. Also, the recommendations with respect to environment management and risk mitigation measures made in EMP for activities during construction phase as well as during operation phase, duly complied as per RILs current practices and procedures.		Date: 10/11/2024
2	WATER QUALITY MONITORING AND PRESERVATION	The Project Proponent proposed post expansion effluent load is expected to be below 20,000 M3/day. The Project Proponent will recycle 50% of the effluent and discharge treated effluent up to maximum 10,000 M3/day within next five years.
PPs Submission: Complied The effluent load is below 20,000 m3/day. The effluent reduction schemes are under implementation to reduce treated effluent discharge maximum upto 10,000 m3/day within the specified time frame.		Date: 10/11/2024
3	WATER QUALITY MONITORING AND PRESERVATION	Comprehensive water audit to be conducted on annual basis and report to the concerned Regional Office of MoEF&CC. Outcome from the report to be implemented for conservation scheme.
PPs Submission: Complied Comprehensive Water Audit has been carried out for the year 23-24 and submitted to MoEFCC regional office vide letter no. RIL/EandE/MOEFCC/24-25/97, Dtd. 29.05.2024. Recommendations of the audit have been duly implemented.		Date: 10/11/2024
4	WATER QUALITY MONITORING AND PRESERVATION	Process effluent/any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.
PPs Submission: Complied We have separate network system of storm water across the complex and hence not allowed to mix with process effluent/any wastewater. There are sluice gates at strategic locations in Storm water channel and thus can be passed through guard pond. Prior to final outlet of storm water, it is duly analyzed as per defined SOP.		Date: 10/11/2024
5	MISCELLANEOUS	Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc. flame arresters shall be provided on tank farm, and solvent transfer to be done through pumps.
PPs Submission: Complied All the hazardous chemicals are stored in tanks, tank farms, drums, carboys etc. safely as per standard practices. Also, flame arresters are provided in tank farm and transfer of solvent takes place in closed system through pipelines using pumps.		Date: 10/11/2024
6	WASTE MANAGEMENT	Process organic residue and spent carbon, if any, shall be sent to cement industries. ETP sludge, process inorganic & evaporation salt shall be disposed off to the TSDF. The ash from boiler shall be sold to brick manufactures/cement industry.

PPs Submission: Complied Process organic residue is sent for co-processing to cement industries for the said period. The ETP sludge and process inorganics are disposed to captive TSDF (Survey Number 162 Block 300 Angad - Nandesari). Hazardous Waste disposal data for reporting period is provided in Annexure.		Date: 10/11/2024
7	AIR QUALITY MONITORING AND PRESERVATION	Regular VOC monitoring shall be done at vulnerable points.
PPs Submission: Complied Regular VOC monitoring is carried out in all the plants as per the LDAR(Leak Detection and Repair) program which includes all joints, valves, flanges, fittings, heat exchanges, pumps, storage tanks and compressors seals. Monthly report is being submitted to GPCB. VOC monitoring data for the reporting period is provided in Annexure.		Date: 10/11/2024
8	WASTE MANAGEMENT	The oily sludge shall be subjected to melting pit for oil recovery and the residue shall be bio-remediated. The sludge shall be stored in HDPE lined pit with proper leachate collection system.
PPs Submission: Complied The oily sludge is recovered and being sent for cement coprocessing. The residue is being bioremediated. The sludge is stored in HDPE lined pit with proper leachate collection system. Monthly reports being submitted to GPCB.		Date: 10/11/2024
9	WASTE MANAGEMENT	Oil catchers/oil traps shall be provided at all possible locations in rain/storm water drainage system inside the factory premises.
PPs Submission: Complied Oil catcher/oil traps are provided at all possible locations. Also, 5 nos. of sluice gates provided at strategic locations in storm water drainage system inside the factory premises to prevent oil/HC carryover in storm water drain.		Date: 10/11/2024
10	Risk Mitigation and Disaster Management	Recommendations of mitigation measures from possible accident shall be implemented based on Risk Assessment studies conducted for worst case scenarios using latest techniques.
PPs Submission: Complied Plant risk assessment has been carried out using PHAST software and all mitigation measures are in place. PIPA (Pre-incident Planning and Assessment) for various probable identified scenarios of emergency for which consequence analysis are done to identify actions required to handle such kind of emergencies.		Date: 10/11/2024
11	MISCELLANEOUS	The project proponent shall develop R&D facilities to develop their own technologies for propylene and polypropylene processing.
PPs Submission: Complied We have R and D facility in place working on development of various technologies, products for propylene and polypropylene processing to cater the needs and expectations of our customers.		Date: 10/11/2024
12	WASTE MANAGEMENT	The company shall undertake waste minimization measures as below: a) Metering and control of quantities of active ingredients to minimize waste. b) Reuse of by-products from the process as raw materials or as raw material substitutes in other processes. c) Use of automated filling to minimize spillage. d) Use or Close Feed system into batch reactors. e) Venting equipment through vapour recovery system. f) Use of high-pressure hoses for equipment cleaning etc. to reduce wastewater generation.

PPs Submission: Complied Measures for waste minimization have been undertaken. a) All quantities of active ingredients are metered/quantified and closely monitored to minimize wastage and optimized accordingly. b) We are re-using by-products as a raw material in downstream process plants and power plant. c) Level sensors/indicators are already installed in tanks to minimize spillage and optimize usage. d) All feed systems in reactors are designed with close loop. e) It is a design feature and already provided to all the vents of spheres, flares, etc. f) High pressure hoses are already in use for cleaning purpose which saves water and reduce wastewater generation also.		Date: 10/11/2024
13	GREENBELT	The green belt of 5-10 m width shall be developed in 40% of the total project area as committed by PP, mainly along the plant periphery, in downward wind direction, and along road sides etc. selection of plant species shall be as per the CPCB guidelines in consultation with the State Forest Department.
PPs Submission: Complied 40 percent greenbelt have been developed along the periphery, in downward wind direction, along roadsides and at other available locations. Species have been selected as per the CPCB guideline with consultation with the State Forest Department.		Date: 10/11/2024
14	Corporate Environmental Responsibility	As per the Ministry's OM dated 30.09.2020 superseding the OM dated 01.05.2018 regarding the Corporate Environmental Responsibility, and as per the action plan proposed by the project proponent to address the socio-economic and environmental issues in the study area, the project proponent, as committed, shall provide education funds in technical training centers/support in nearby village's schools, support in health care facilities, drinking water supply and funds for miscellaneous activities like solar street lights, battery, solar panel etc., in the nearby villages. The action plan shall to be completed within time as proposed.
PPs Submission: Complied The CER plan spreading over 5 years had been proposed to address the socio-economic and environmental issues in the study area. As per plan, we have utilized the allocated funds towards upliftment of nearby villages through livelihood support, women empowerment, education, environment protection, health and sanitation as provided in Annexure.		Date: 10/11/2024
15	MISCELLANEOUS	The project proponent shall ensure 70% of the employment to the local people, as per the applicable law. The project proponent shall set up a skill development center/provide skill development training to village people.
PPs Submission: Complied The current employment of the local people is as per the applicable law. We are providing the skill development training to nearby villagers through various activities as a part of the CSR activities.		Date: 10/11/2024
16	MISCELLANEOUS	A separate Environmental Management Cell (having qualified person with Environmental Science/Environmental Engineering / specialization in the project area) equipped with full-fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.
PPs Submission: Complied We already have a separate Environment Management Cell with qualified personnel for Environmental Management as well as full-fledged NABL accredited laboratory setup to carry out Environment monitoring functions.		Date: 10/11/2024
17	MISCELLANEOUS	The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Firefighting system shall be as per the norms.

PPs Submission: Complied We have an adequate setup for protection of possible fire hazard during manufacturing process in material handling. We have well established fire-fighting system in place as per norms.		Date: 10/11/2024
18	AIR QUALITY MONITORING AND PRESERVATION	Continuous online (24x7) monitoring system for stack emissions shall be installed for measurement of flue gas discharge and the pollutants concentration, and the data to be transmitted to the CPCB and SPCB server. In case of the treated effluent to be utilized for irrigation/gardening, real time monitoring system shall be installed at the ETP outlet.
PPs Submission: Complied All operational stacks are installed with CEMS (Continuous Emission Monitoring System) for monitoring the quality of flue gases discharged to the atmosphere and we are ensuring that the data is regularly transmitted to CPCB and GPCB server in accordance with the CPCB guidelines. Real time monitoring system is also installed at the ETP outlet and connected to CPCB and GPCB server. ETP outlet monitoring data for reporting period is provided in Annexure.		Date: 10/11/2024
19	Human Health Environment	PP to set up occupational health Centre for surveillance of the worker's health within and outside the plant on a regular basis. The health data shall be used in deploying the duties of the workers. All workers & employees shall be provided with required safety kits/ mask for personal protection.
PPs Submission: Complied A fully operational well maintained occupational health Centre (OHC) is already setup and available for surveillance of the workers health on regular basis. The data from OHC is utilized for deploying workers at various locations in plants. Also required mandatory PPE kits are provided to the employees and workers to ensure safety while carrying out their jobs.		Date: 10/11/2024
20	AIR QUALITY MONITORING AND PRESERVATION	The National Emission Standards for Petrochemical (Basic & Intermediates) issued by the Ministry vide G.S.R. 820 (E) dated 9th November, 2012 as amended time to time shall be followed.
PPs Submission: Complied The National Emission Standards for Petrochemical (Basic and Intermediates) is followed. Monthly compliance is being submitted to GPCB. Summary of stack monitoring data for operational plants/stacks for reporting period is provided in Annexure.		Date: 10/11/2024

General Conditions

Sr.No.	Condition Type	Condition Details
1	MISCELLANEOUS	No further expansion or modifications in the plant, other than mentioned in the EIA Notification, 2006 and its amendments, shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change/SEIAA, as applicable. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry/SEIAA, as applicable, to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
PPs Submission: Complied Noted and Agreed.		Date: 10/11/2024
2	ENERGY PRESERVATION MEASURES	The energy source for lighting purpose shall be preferably LED based, or advanced having preference in energy conservation and

		environment betterment.
PPs Submission: Complied The lighting fixtures in offices, plants and streets are all LEDs for energy conservation and environment betterment.		Date: 10/11/2024
3	Noise Monitoring & Prevention	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under the Environment (Projection) Act, 1986 Rules 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).
PPs Submission: Complied The noise levels in and around the plant area is kept well within the standards of EPA 1986 through provision of acoustic enclosures, silencers, and mature green belt. The ambient noise monitoring is also carried out at various locations at the periphery of the complex area. We are complying with the standards prescribed under the Environment (Projection) Act, 1986 Rules 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime) and report is submitted to GPCB on monthly basis. Noise monitoring data for reporting period is provided in Annexure.		Date: 10/11/2024
4	Corporate Environmental Responsibility	The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. CER activities shall be undertaken by involving local villages and administration and shall be implemented. The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.
PPs Submission: Complied CER activities are being undertaken for improving the socio-economic conditions, eco-developmental measures including community welfare of the surrounding area as per plan. In accordance with the plan, we have utilized the allocated funds towards upliftment of nearby villages through livelihood support, women empowerment, education, environment protection, health, and sanitation.		Date: 10/11/2024
5	MISCELLANEOUS	The company shall earmark sufficient funds towards capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management/ pollution control measurers shall not be diverted for any other purpose.
PPs Submission: Complied Yearly capital cost and recurring cost earmarked and spent for environment management/ pollution control measures are submitted to the Ministry and GPCB in Form V. The total Capital Cost incurred in 2023-24 is Rs. 4.46 Cr. and Recurring cost is Rs. 10.62 Cr.		Date: 10/11/2024
6	MISCELLANEOUS	A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, Zilla Parishad/Municipal Corporation, Urban local Body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal.
PPs Submission: Complied Not Applicable. Project as it is located within Petrochemical Complex Area Notified by GIDC.		Date: 10/11/2024
7	Statutory compliance	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as

		well as by e-mail) to the respective Regional Office of MoEF&CC, the respective Zonal Office of CPCB and SPCB. A copy of Environmental Clearance and six monthly compliance status report shall be posted on the website of the company.

PPs Submission: Complied Last submitted six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of required monitored data was submitted to Regional Office of MoEF and CC, Gandhinagar, Zonal office CPCB, Vadodara and GPCB dtd. 29th May-2024 (both in hard copies as well as by e-mail). The copy of Environmental Clearance and six monthly compliance status report have been posted on the companys website.	Date: 10/11/2024

8	Statutory compliance	The environmental statement for each financial year ending 31st March in Form V as is mandated shall be submitted to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of MoEF&CC by e-mail.

PPs Submission: Complied Copy of Last submitted Environmental Statement (for the year 2023-24 dtd. 25.09.2024) in Form V is attached as Annexure-I. The same has also been put on company's website along with the status of compliance of environmental clearance conditions.	Date: 10/11/2024

9	Statutory compliance	The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry and at https://parivesh.nic.in/. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.

PPs Submission: Complied Advertised in 4 local newspapers (3 in vernacular language and 1 English language) dtd. 7th Feb 2021 and the copy forwarded to the Regional Office of the Ministry in Bhopal vide letter no. RIL/E and E/EC/21/2867 dtd. 10.03.2021.	Date: 10/11/2024

10	MISCELLANEOUS	The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.

PPs Submission: Complied Noted and Agreed. The project was started with due approval from GPCB vide CTE dtd. 07.09.2021. The project has been partially completed.	Date: 10/11/2024

11	MISCELLANEOUS	This Environmental clearance is granted subject to final outcome of Hon’ble Supreme Court of India, Hon’ble High Court, Hon’ble NGT and any other court of Law, if any, as may be applicable to this project.

PPs Submission: Complied Noted and Agreed.	Date: 10/11/2024

Visit Remarks

Last Site Visit Report Date:	N/A
Additional Remarks:	Annexures are attached as additional Attachment.

Note: This acknowledgement is as per the details submitted by project proponent. In no way is this document to be considered as conclusion on any action on the compliance of the project. This is strictly for the project proponent's reference purpose.

ANNEXURE-I FORM V

Reliance
Industries Limited

Vadodara Manufacturing Division

RIL/E&E/GPCB /ES/24-25/125

Date: 25/09/2024

PCB ID: 22051

To,
The Member Secretary,
Gujarat Pollution Control Board
Paryavaran Bhavan, Sector-10
Gandhinagar- 382010

Respected Sir,

Kind Attn: Shri. B. D. Prasad, Unit Head- Vadodara

Sub: Environment Statement (Form V): 2023-24 of Reliance Industries Limited, Vadodara Manufacturing Division.

With Reference to the above subject, please find enclosed "Environment Statement (Form V)" of Reliance Industries Limited, Vadodara Manufacturing Division for the year 2023-24.

Kindly acknowledge receipt of the same.

Thanking you,

Yours Truly,
For RIL-Vadodara Mfg. Division

(Authorized Signatory)

Encl: As above

CC: Regional Officer, GPCB, Vadodara

24/09/24
G. P. C. Board
GERI Compound
Race Course, Vadodara.

O/C

FORM- V For the Year 2023-24

ENVIRONMENTAL STATEMENT REPORT for Year 2023-24

M/S Reliance Industries Limited, Vadodara Manufacturing Division

PART- A

(i) Name and address of the owner/ : **Sh. Rajiv Agarwal,**

Occupier of the Industry, operation or process : **Site President**
Reliance Industries Ltd.
Vadodara Manufacturing Division
P.O Petrochemicals
Vadodara-391346

(ii) Date of the last environmental Audit report submitted : **30th June, 2024**

(iii) Production Capacity : **Please Refer Annexure: I**

(iv) Year of Establishment : **Please Refer Annexure: II**

(v) Last Environment Statement Submitted : **4th September 2023**

PART- B

WATER AND RAW MATERIAL CONSUMPTION

(i) Water consumption m^3 /d

Cooling: (Spraying) : 11,682 m^3/d
Domestic : 4,100 m^3/d
Process : 16,746 m^3/d

Name of Products	Water consumption per unit of Products	
	During the previous Financial Year	During the Reporting Financial Year
Polymers and Chemicals	9.68 m^3/MT	7.30 m^3/MT

(ii) Raw Material Consumption

Name of raw material consumed	Name of products	Consumption of raw material per unit of output	
		During the previous financial year	During the Reporting financial year
Please Refer Annexure: III			

PART- C
Pollution discharges to environment/ unit of output.
(Parameter as specified in the consent issued)

(i) Pollution	Quality of Pollutants Discharged (Mass/day)	Concentration of Pollutants discharges (mass/volume)	Percentage of variation from prescribed standards
a) Water	**Please Refer Annexure: IV**		
b) Air	**Please Refer Annexure: V**		

PART- D
(HAZARDOUS WASTES)

Hazardous Wastes	Total Quantity (MT)	
	During the previous financial year	During the reporting financial year
(a) From process	2,838.81	2,845.235
(b) From pollution Control Facilities	703.14	299.43

For Details, Please Refer Annexure: VI

PART- E
SOLID WASTES

	TOTAL QUANTITY (MT)	
	During the Previous Financial Year	During the reporting Financial Year
(a) From Pollution Control Equipment	**NA**	**NA**
(b) From Process	**Nil**	**Nil**

PART- F

Please specify the characterizations (in terms of composition of quantum) of Hazardous as well solid waste and indicate disposal practice adopted for both these categories of wastes.

Please Refer Annexure: VI

PART- G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production.

i. Leak Detection and Repair (LDAR) Level III carried out for fugitive emission control and environment protection.
ii. Implementation of various energy saving schemes leading to reduction of GHG emission.
iii. Schemes for condensate recovery, waste heat recovery and treated effluent are implemented for resource conservation.
iv. Reusable/Recyclable hazardous wastes recycled through registered recyclers.
v. Incinerable hazardous waste sent to cement industry for co-processing.

PART- H

Additional measures/ investment proposal for environmental protection including abatement of pollution, prevention of pollution.

Sr. No.	Category	Expenditure	
1	Treatment and disposal costs	₹	7,45,73,293
2	External services for environmental management	₹	21,48,293
3	External certification of management systems	₹	7,47,219
4	Personnel for general environmental management activities	₹	60,00,000
5	Extra expenditure to install cleaner technologies	₹	4,45,74,306
6	Other environmental management costs	₹	2,26,34,659
Total		₹	**15,06,77,770**

PART- I

Any other particulates in respect of environmental protection and abatement of pollution.

1. Site is ISO – 14001-2015 standard certified.
2. 18,800 sapling plantation was carried out during the year.
3. Environment awareness activities for workforce, school children being carried out.

(Signature of a person carrying out an Industry - operation or process)

Name : **Sh. Rajiv Agarwal**
Designation : **Site President**
Address : **Reliance Industries Ltd.**
Vadodara Manufacturing Div.
Vadodara-391346

Date: **25.09.2024**
Place: **Vadodara**

ANNEXURE – I

PRODUCTION CAPACITY (TPA)

Plant	Product	Capacity (TPA)
GAP *	Orthoxylene	45,408
	Paraxylene	48,600
	Dimethyl Terphthalate	39,996
GOP	Ethylene	3,00,000
	Propylene	1,80,000
	Carbon Black Feed Stock	36,000
	Butadiene	78,000
	Benzene	86,880
	Toluene	27,000
	C4 Rafinate	73,020
	Pyrolysis Gasoline (PGH)	2,20,020
	NRS	1,65,000
	Mix C4	1,27,020
	Heavy Aromatics	54,000
	Power Generation	4.6 MWH
	Steam	96 TPH
	Hydrogen	7,000
	Aromatic Feed Stock (AFS)	1,30,000
	C9+ hydrocarbon (Heavy Ends)	3,900
	Lean LPG	30,000
	C5 Stream	55,000
LAB *	Linear Alkyl Benzene	83,040
	Heavy Normal Paraffin (HNP)	8,400
	Light Normal Paraffin (LNP)	2,400
	Normal Paraffin	60,000
	Heavy Alkylates	4,800
	Heavy Alkyl Benzene (HAB)	3,700
	Poly Alkyl Benzene (PAB)	2,500
EO/EG	Ethylene Glycol	25,680
	Ethylene Oxide	22,080
	Di Ethylene Glycol (DEG)	1,620
	Tri Ethylene Glycol(TEG)	180
	Poly Ethylene Glycol (PEG)	1,800
	Carbon dioxide	9,500
AF*	Monocomponent Acrylic	12,000
	Poly Acrylonitrile (PAN)	12,000
DSAF*	Monocomponent Acrylic Fiber	12,000
	Poly Acrylonitrile (PAN)	12,000
PBR – I	PolyButadiene	47,160
	Rubber Crumbs	250
	High Boiler	250
PR*	Petroleum Resin	5,004
PP-I*	Polyproylene (PP-I)	36,000
PPCP(PP-II)	Polypropylene PPCP (PP-II)	64,080
	Atactic Polymer	4,000
LDPE	Low Density Polyethylene	1,60,020
	Wet Wax	150
ACN *	Acrylonitrile	30,000
	Acetonitrile	2,000
	Hydrogen Cyanide (HCN)	3,500
ACR*	Methyl Acrylates	2,040
	Ethyl Acrylates	3,000
	Butyl Acrylates	4,008

Plant	Product	Capacity (TPA)
VC/PVC	Ethylene Dichloride	1,00,020
	Vinyl Chloride Monomer	93,240
	Poly Vinyl Chloride	94,800
	EDCL (Ethylene Dichloride Lighters)	1,000
	Wet Resin	500
CPVC*	Chlorinated Poly Vinyl Chloride (CPVC)	72,000
	HCl	17,004
IOP	HP Steam (TPH)	476 TPH
	Electricity (MWH)	25 MWH
	Nitrogen (Liquid)	1,100
	Nitrogen (Gaseous)	75,000
	Oxygen	27,000
GTPP	HP Steam (TPH)	144 TPH
	Electricity (MWH)	65.4 MWH
CF*	Carbon Fiber	12
PP – IV	Polypropylene	1,60,440
	Sweep grade	400
PBR – II	Poly Butadiene Rubber	63,600
	Rubber Crumbs	300
	High Boiler	300

*** Plant under shutdown during reporting period**

ANNEXURE – II

DATE OF COMMISSIONING OF PLANT

Sl. No.	PRODUCTION NAME	PLANTS ABBREVATION	YEAR OF COMMENCEMENT
1.	Gujarat Aromatics Plant	GAP	
	A. Xylene Plant		1973-74
	B. Dimethyl Terephthalate Plant		1973-74
2.	Gujarat Olefins Plant	GOP	1978-79
	A. Naphtha Cracker	NCP	
	B. Benzene Butadiene Hydrogenation	BBH	
3.	Linear Alkyl Benzene Plant	LAB	1978-79
4.	Ethylene Glycol Plant	EG	1978-79
5.	Low Density Polyethylene	LDPE	1978-79
6.	Polypropylene Plant.	PP-I	1978-79
7.	Polypropylene Copolymer PPCP	(PP-II)	1987-88
8.	Polybutadiene Rubber Plant	PBR-I	1978-79.
9.	Petroleum Resin Plant	PR	1984-85
10.	Vinyl Chloride & Poly-Vinyl Chloride	VC/PVC	1983-84.
11.	Acrylonitrile Plant	ACN	1978-79
12.	Acrylates Plant	ACR	1982-83.
13.	Acrylic Fibre (Mono Component)	AF	1978-79.
14.	Dry Spun Acrylic Fibre Plant	DSAF	1987-88.
15.	Carbon Fibre Plant	CF	1990.
16.	Integrated Off Site Plant	IOP	1978-79.
17.	Gas Turbine Power Plant	GTPP	1987.
18.	Polypropylene Plant (New)	PP-IV	1997.
19.	Poly Butadiene Rubber Plant	PBR-II	1997.

ANNEXURE – III

RAW MATERIAL CONSUMPTION PER UNIT OF PRODUCTION

Sr. No.	Plant	Products	Raw Materials	Consumption per Unit of Production (Kg/ MT)	
				2022-23	2023-24
1	GAP	Ortho & Para Xylene, DMT	Naphtha	*	*
			C5 Stream	*	*
			Para Xylene	*	*
			Methanol	*	*
2	GOP	Ethylene, Propylene, Carbon Black Feed Stock (CBFS), Mix C4, Butadiene, Benzene, Toluene, C4 Raffinate, Pyrolysis Gasoline, Naphtha Return Stream, Heavy Aromatics, Aromatic Feed Stock, Heavy Ends, Lean LPG, C5 Stream	Naphtha	1,909	1,913
			High Boilers	1.27	1.07
			Lean LPG	*	*
			AFS	151	159
			Pyrolysis Gasoline	2274	2270
			Mix C4	2010	2045.9
3	LAB	Linear Alkyl Benzene, N-paraffin, Heavy Alkylates, Heavy Normal Paraffin, Light Normal Paraffin	Kerosene	*	*
			Benzene	*	*
			Hydrogen	*	*
4	ACN	Acrylonitrile	Propylene	*	*
			Ammonia	*	*
5	DSAF	Monocomponent Acrylic Fiber	Acrylonitrile	*	*
			Methyl Acrylate	*	*
			Sodium methyl sulfonate	*	*
			Dimethyl Formamide	*	*
6	VC/ PVC/ CPVC	Ethylene Dichloride, Vinyl Chloride Monomer, Poly vinyl Dichloride	Ethylene	250	250
			EDC	836.8	847
			Chlorine	12.7	18.23
		Poly Vinyl Chloride	VCM	1000.9	1007.1
7	CF	Carbon Fiber	SAF	*	*
8	PP-II	Poly Propylene Co Polymer	Propylene	999	1006
			Hexane	19.9	22.052
			Ethylene	79.11	80.37
9	LDPE	Low Density Polyethylene	Ethylene	1,023.2	1015.9
10	PP-I	Poly Propylene	Propylene	*	*
			Heptane	*	*
			Butanol	*	*
11	PBR-I	Poly Butadiene rubber	Butadiene 1:3	1,006.4	1.003.6
			Butene – 1	10.2	7.243
			Benzene	40.5	28.38
			Butadiene 1:2	1.4	1.4
12	EG	Ethylene Oxide, Ethylene Glycols, DEG, TEG, PEG	Ethylene	674.69	755.1
			Oxygen	618.65	657.8

Sr. No.	Plant	Products	Raw Materials	Consumption per Unit of Production (Kg/ MT)	
				2022-23	2023-24
13	ACR	Methyl Acrylate Ethyl Acrylate Butyl Acrylate	Acrylonitrile	*	*
			Methanol	*	*
			Sulfuric Acid	*	*
			Acrylonitrile	*	*
			Ethanol	*	*
			Sulfuric Acid	*	*
			Acrylonitrile	*	*
			Butanol	*	*
			Sulfuric Acid	*	*
14	AF	Mono component Acrylic Fiber	Acrylonitrile	*	*
			Methyl Acrylate	*	*
			Sodium Methallyl Sulfonate	*	*
			Nitric Acid	*	*
15	PP-IV	Poly Propylene	Propylene	1,055.4	1053.99
			Ethylene	1.8	1.99
			Hydrogen	0.298	0.235
16	PBR-II	Poly Butadiene Rubber	Butadiene 1:3	1,049.1	1043.1
			Heptane	8.8	9.99
			Toluene	30.75	31.64
17	PR	Petroleum Resin	Pyrolysis Gasoline	*	*

* **Plant under shutdown during reporting period**

ANNEXURE – IV

CHARACTERISTICS OF WASTEWATER BEFORE AND AFTER TREATMENT FOR THE YEAR 2023-24

Sr. No.	Parameter	MDL	GPCB Std	Before Treatment			After treatment			No. of occasion Exceeding Standards after Treatment
				Min	Max	Avg.	Min	Max	Avg.	
1	pH	0.1	6.5-8.5	4.3	9.3	6.55	6.96	7.45	7.23	Nil
2	Temperature (°C)	-	40	-	-	-	26.20	27.60	27.1	Nil
3	Colour (Units)	5.0	100	20	100	33.7	20.00	20.00	20.0	Nil
4	Suspended Solids (mg/l)	10.0	100	12	44	22.9	22.00	31.00	26	Nil
5	O&G (mg/l)	1.0	10	-	-	-	-	BDL	BDL	Nil
6	Phenolic Compounds (mg/l)	0.02	1	-	-	-	-	BDL	BDL	Nil
7	Cyanides (mg/l)	0.05	0.2	-	-	-	-	BDL	BDL	Nil
8	Fluorides (mg/l)	0.2	1.5	0.42	0.88	0.6	0.39	0.53	0.43	Nil
9	Sulfides (mg/l)	1.0	2.0	-	-	-	-	BDL	BDL	Nil
10	Ammonical Nitrogen (mg/l)	0.05	50	-	-	-	-	BDL	BDL	N
11	Arsenic (mg/l)	0.01	0.2	-	-	-	-	BDL	BDL	Nil
12	Total Chromium (mg/l)	0.02	2	-	-	-	-	BDL	BDL	Nil
13	Hexavalent chromium (mg/l)	0.02	0.1	-	-	-	-	BDL	BDL	Nil
14	Copper (mg/l)	0.03	3	-	-	-	-	BDL	BDL	Nil
15	Lead (mg/l)	0.02	0.1	-	-	-	-	BDL	BDL	Nil
16	Mercury (mg/l)	0.01	0.01	-	-	-	-	BDL	BDL	Nil
17	Nickel (mg/l)	0.02	3	-	-	-	-	BDL	BDL	Nil
18	Zinc (mg/l)	0.01	5	-	-	-	-	BDL	BDL	Nil
19	Cadmium	0.01	2	-	-	-	-	BDL	BDL	Nil
20	BOD 3 days at 27 °C (mg/l)	2.0	100	52	218	111.1	6	31	13.1	Nil
21	COD (mg/l)	3.0	250	114	2500	441.7	32	112	49	Nil
22	Chlorides (mg/l)	1.0	2,000	-	-	-	499	822	688	Nil
23	Sulphates (mg/l)	1.0	1,000	-	-	-	160	392	283	Nil
24	Total Dissolved Solids(mg/l)	3.0	5,000	-	-	-	1462	1924	1754	Nil
25	Free Ammonia	0.05	5	-	-	-	-	BDL	BDL	Nil
26	Sodium Absorption ratio	-	26	-	-	-	2.94	12.73	7.0	Nil

MDL: Minimum Detection Limit; BDL: Below Detection Limit

AVERAGE QUANTITY OF TREATED FINAL EFFLUENT PUMPED TO VECL 2023-24

Treated Effluent	Consent Limit (m^3/d)	Actual (m^3/d)
Total	18,800	8,333.4

Total Treated Effluent recycled for Gardening/ cooling tower makeup = 690 m^3/day

ANNEXURE – V

STACK EMISSIONS FROM BOILERS/HEATERS/FURNACES & PROCESS VESSELS (2023-24)

Plant	Stack No.	GPCB Prescribed Parameters	SPM	SO2	NOx	CO	Cl2	HCl	No. times exceeding limits
			Result mg/Nm3	Result mg/Nm3	Result mg/Nm3	Result mg/Nm3	Result mg/Nm3	Result mg/Nm3	
GOP	GT-1709	SPM, SO2, NOx, CO	1.83	N.D.	71.05	30.72	-	-	Nil
GOP	GT-1710	SPM, SO2, NOx, CO	1.88	N.D.	68.92	30.44	-	-	Nil
GOP	Super Heater-107 & 108	SPM, SO2, NOx, CO	1.78	N.D.	82.48	1.47	-	-	Nil
IOP	Boiler – 4	SPM, SO2, NOx, CO	5.44	46.08	95.59	-	-	-	Nil
IOP	Boiler – 5	SPM, SO2, NOx, CO	4.90	22.05	47.23	1.48	-	-	Nil
GTPP	HRSG-1	SPM, SO2, NOx, CO	4.11	N.D.	69.80	59.74	-	-	Nil
GTPP	HRSG-2	SPM, SO2, NOx, CO	4.13	N.D.	77.36	49.54	-	-	Nil
VC/ PVC	Cracker R-201	SPM, SO2, NOx, CO	-	N.D.	1.68	2.80	-	-	Nil
VC/ PVC	Scrubber	CL2, HCL	-	-	-	-	0.89	1.43	Nil
VC/ PVC	PVC Dryer	PM	5.0	-	-	-	-	-	Nil

Note: N.D – Not Detectable; Minimum detection limit: SO_2 - 4 mg/Nm³

ND: Non-Detectable; Other Consented Plants/stacks were Non-operational during reporting period.

QUANTITY OF POLLUTANTS DISCHARGE TO AIR ENVIRONMENT FOR THE YEAR 2023-24

Parameter	Load Tons/day
SO_2	0.081
NOx	1.246
PM	0.073

ANNEXURE – VI

HAZARDOUS WASTE DISPOSAL QUANTITY, CHARACTERIZATION & DISPOSAL PRACTICE (2023-24)

Category	Characterization	Disposal Practice	Disposal (MTA)
1.1-Sch.I	Furnace / Reactor residue and debris	*Secured Landfill incineration/ Cement co-processing/ pre-processing*	0.00
1.2-Sch.I	Tarry Residues and still bottom from distillation	*Captive Incineration/Cement Co-processing/ pre-processing*	0.00
1.3-Sch.I	Oily Sludge Emulsions	*Captive Incineration/Cement Co processing/ pre-processing*	20.85
1.4-Sch.I	Organic Residues	*Captive Incineration/Cement Co processing/ pre-processing*	0.00
1.6-Sch.I	Spent catalysts and molecular sieves	*Sale to registered recycler*	9.535
1.6-Sch.I	Spent catalysts and molecular sieves	*Secured Landfill/ incineration/ Cement Co processing/ pre-processing*	29.28
1.7-Sch.I	Oil Emulsions (Slop oil)	*Captive incineration/ Cement Co processing/ pre-processing*	40.98
1.7-Sch.I	Oil Emulsions (Slop oil)	*Sale to registered recycler*	26.81
35.3-Sch.I	ETP Sludge containing hazardous constituents	*Secured Landfill/Cement Co-processing/ pre-processing*	299.431
5.1-Sch.I	Used / Spent Oil	*Sale to reg. recycle/ Captive incineration*	326.63
22.2-Sch.I	Process Residue*	*Incineration / Cement Co-processing/ pre-processing/sale to registered recycler*	2,346.65
35.2-Sch.I	Spent Resin	*Secured Landfill/incineration/sale to registered recycler/Cement Co-processing/ pre-processing*	14.20
36.2-Sch.I	Filters and filter mat. With organic liquids in them, e.g. Mineral oil, synthetic oil and organic chlorine comp.	*Captive incineration/Cement Co-processing/ pre-processing*	0.00
37.2-Sch.I	Ash from incineration of haz-waste, flue gas residues	*Landfill/Cement Co-processing/ incineration*	0.00
B-15	Acid Sludge	*Landfill/ incineration*	0.00
C-1	Highly flammable substances	*Captive Incineration/Cement Co-processing/pre-processing*	0.00
C-3	Process waste	*Captive Incineration/Cement Co-processing/pre-processing*	0.00
33.2-Sch.I	Contaminated cotton waste	*Incineration/Cement Co-processing/pre-processing*	0.85
Sch. IV	copper scarp	*Sale to reg. recycler*	29.45
Total Hazardous Waste			**3,144.67**
33.1-Sch.I	Discarded Containers/ Barrels/ Liners/ used for Hz waste/ chemicals	*Decontamination within premise/ sale to registered recycler*	8,370 Nos.

Note: RIL-VMD Captive Secured Landfill: *RIL-VMD, Survey No. 162, Block 300, Vill – Angadh, Nandesari.*

**** Process residue:*** *Authorized Captive RIL Incineration @ RIL-HMD/RIL-DMD.*

OTHER ANNEXURES

Hazardous Waste disposal data for reporting period

Mode of Disposal	Captive SLF (MT)	Cement Co-processing (MT)	Total (MT)
Apr-24	0.0	29.75	29.75
May-24	99.9	0.0	99.9
Jun-24	115.0	18.82	133.82
Jul-24	0.0	0.0	0.0
Aug-24	0.0	0.0	0.0
Sep-24	0.0	0.0	0.0

VOC monitoring data for the reporting period

Sr. No.	Plant	No. of points covered using Photoionization Detector (LDAR Level III) Apr 24 to Sep-24
1	BBH	2924
2	EG	698
3	LDPE	1760
4	IOP	1498
5	NCP	315
6	PBR I	409
7	PBR II	1774
8	PPCP	1304
9	PPIV	507
10	PTD	371
11	PVC	442
12	UB II	257
13	VCM	1469
Note: No reportable leakage had been observed.		

CER plan

2020-21	2021-22	2022-23	2023-24
₹ 20.86 Cr	₹ 15.32 Cr	₹ 17.38 Cr	₹16.43 Cr

ETP outlet monitoring data for reporting period

Sr. No.	Parameter	UoM	MDL	Min	Max	Avg
1	pH	-	2.00	7.17	7.46	7.30
2	Temperature	°C	-	25.80	28.10	27.03
3	Colour	Pt. CO. Scale	1.00	20.00	20.00	20.00
4	Suspended Solids	mg/L	2.00	18.00	25.00	21.17
5	Oil & Grease	mg/L	1.00	BDL	BDL	BDL
6	Phenolic Compound	mg/L	0.02	BDL	BDL	BDL
7	Cyanide	mg/L	0.05	BDL	BDL	BDL
8	Fluoride	mg/L	0.05	0.33	0.56	0.48
9	Sulphide	mg/L	1.00	BDL	BDL	BDL
10	Amm. N_2	mg/L	0.05	BDL	5.70	2.44
11	Arsenic	mg/L	0.01	BDL	BDL	BDL
12	Total Chromium	mg/L	0.02	BDL	BDL	BDL
13	Hexavalent chromium	mg/L	0.02	BDL	BDL	BDL
14	Copper	mg/L	0.03	BDL	BDL	BDL
15	Lead	mg/L	0.02	BDL	BDL	BDL
16	Mercury	mg/L	0.01	BDL	BDL	BDL
17	Nickel	mg/L	0.02	BDL	BDL	BDL
18	Zinc	mg/L	0.03	BDL	BDL	BDL
19	Cadmium	mg/L	0.01	BDL	BDL	BDL
20	BOD 3 days at 27 °C	mg/L	2.00	12.00	34.00	20.00
21	COD	mg/L	5.00	68.00	226.00	106.00

Sr. No.	Parameter	UoM	MDL	Min	Max	Avg
22	Chlorides	mg/L	1.00	749.00	831.00	781.17
23	Sulphates	mg/L	1.00	214.00	287.00	258.50
24	TDS	mg/L	3.00	1728.0	1996.0	1854.0
25	Sodium Absorption Ratio	-	0.01	2.87	8.93	5.44
26	Free Ammonia	mg/L	0.05	BDL	BDL	BDL

BDL- Below Detectable Limit. MDL – Minimum Detectable Limit

Stack monitoring data for operational plants/stacks for reporting period

Stack	Parameter	Unit	Min	Max	Avg
GOP-GT 1709	SPM	mg/Nm^3	4.10	4.30	4.18
	SO_2	mg/Nm^3	N.D	N.D	N.D
	NO_x	mg/Nm^3	27.45	41.27	32.82
	CO	mg/Nm^3	6.24	84.84	36.78
GOP-GT 1710	SPM	mg/Nm^3	3.60	4.30	4.05
	SO_2	mg/Nm^3	N.D	N.D	N.D
	NO_x	mg/Nm^3	28.82	42.75	33.99
	CO	mg/Nm^3	5.56	82.36	33.00
GOP SH 107	SPM	mg/Nm^3	3.50	4.10	3.73
	SO_2	mg/Nm^3	N.D	N.D	N.D.
	NO_x	mg/Nm^3	33.06	48.28	40.65
	CO	mg/Nm^3	1.86	5.64	3.89
IOP-Boiler -4	SPM	mg/Nm^3	1.40	14.60	5.83
	SO_2	mg/Nm^3	N.D	140.10	46.70
	NO_x	mg/Nm^3	15.65	27.31	20.84
	CO	mg/Nm^3	3.16	5.63	4.16
IOP-Boiler -5	SPM	mg/Nm^3	1.70	2.30	1.96
	SO_2	mg/Nm^3	N.D	N.D	N.D
	NO_x	mg/Nm^3	12.35	22.82	16.55
	CO	mg/Nm^3	1.88	5.16	3.79
GTPP- HRSG-1	SPM	mg/Nm^3	3.10	4.00	3.45
	SO_2	mg/Nm^3	N.D	N.D	N.D
	NO_x	mg/Nm^3	15.19	38.70	22.69
	CO	mg/Nm^3	14.10	68.57	41.01
GTPP – HRSG-2	SPM	mg/Nm^3	2.80	3.70	3.34
	SO_2	mg/Nm^3	N.D	N.D	N.D

	NO_x	mg/Nm^3	34.06	60.84	45.23
	CO	mg/Nm^3	8.69	64.70	41.79
(VC/PVC) R-201 Cracker	SPM	mg/Nm^3	2.40	3.50	3.05
	SO2	mg/Nm^3	N.D	N.D	N.D
	NOx	mg/Nm^3	10.34	15.53	13.21
	CO	mg/Nm^3	2.56	6.08	4.62
(VC/PVC) Scrubber Vent	Cl2	mg/Nm^3	0.99	1.66	1.14
	HCl	mg/Nm^3	1.05	1.66	1.39
(VC/PVC) Rotary Dryer	PM	mg/Nm^3	2.70	3.80	3.37
ACN absorber column	HCN	mg/Nm^3	N.D	N.D	N.D
ACN liquid incinerator	SPM	mg/Nm^3	N.D	4.50	2.25
	SO2	mg/Nm^3	N.D	14.05	7.03
	NOx	mg/Nm^3	23.26	72.94	48.10
	CO	mg/Nm^3	1.03	2.46	1.75
Note: N.D is Not detectable; Min. Detectable limit: SO2 -4 mg/Nm^2, PM -0.01 mg/Nm^3					

Noise monitoring data for reporting period

Time		VIP Gate	Dhanora Gate	Gate No : 5	ACN Plant backside	South Road Turning
6:00 AM to 10:00 PM	Avg	62.6	62.8	63.0	62.7	62.7
	Max	63.7	64.0	64.4	63.8	63.8
	Min	61.4	61.5	62.0	61.5	61.0
10:00 PM to 06:00 AM	Avg	51.9	52.0	51.8	52.3	51.7
	Max	53.3	53.5	53.0	53.3	53.3
	Min	50.7	50.7	50.7	51.1	50.6

UoM- dBA