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STATE POLLUTION CONTROL BOARD, ODISHA

A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012
Phone-2561909, Fax: 2562822, 2560955

CONSENT ORDER

No. 4945 / IND-I-CON-5436 Dt. 25.03.2021 /

CONSENT ORDER NO. 2189

Sub : Consent for discharge of sewage and trade effluent under Section 25/26 of Water (PCP) Act, 1974 and discharge of emission under Section 21 of Air (PCP) Act, 1981 for operation of the plant.

Ref : Your online application **ID No. 3298872, Dtd.28-12-2020**

Consent to operate is hereby granted under section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act, 1981 and rules framed thereunder to;

Name of the Industry: **M/s Vedanta Limited (Alumina Refinery Unit), Lanjigarh**

Name of the Occupier & Designation : **Sri Arun Kumar GR, Group CFO**

Address : **At/PO-Lanjigarh, Via-Viswanathpur, Dist-Kalahandi-766027, Odisha**

Details of Products Manufactured:

Sl. No.	Product	Quantity
01	Calcined Alumina	2.0 Million MT/Annum
02	Thermal Power	75 MW
03	Vanadium (By-product)	3000 MT/Annum

This consent order is valid for the period from **01.04.2021** to **31.03.2022**

This consent order is valid for the specified outlets, discharge quantity and quality of effluents (ii) quantity of emission and its quality, specified chimney / stack (iii) quantity of solid waste and its disposal as specified below.

This consent is granted subject to the General and Special Conditions stipulated below:

A. Discharge permitted through the following outlet subject to the standard

Outlet No.	Description of outlet	Point of discharge	Quantity of discharge KLD or KL/hr	Pre-scribed Standard				
				pH	TSS (mg/l)	BOD (mg/l)	COD (mg/l)	O & G (mg/l)
01	Domestic wastewater after treatment	On land for plantation / horticulture activities / dust suppression	360 KLD	5.5-9.0	100	30	250	10.0
02	Wastewater from the plant	To be recycled	No discharge					

B. Emission permitted through the following stack subject to the prescribed standard

Chimney Stack No.	Description of Stack (Stack attached to)	Stack height (m) Above GL	Quantity of emission	Prescribed Standard		
				PM (mg/Nm^3)	SO_2	NO_x
01	ESP of Calciner-I	120 m	3,36,500	100	-	-
02	ESP of Calciner-II	120 m	3,36,500	100	-	-
03	ESP of Boiler-I,II & III of CPP	145 m (common)	5,89,651	100	-	-
04	DG set (2x2200 KVA)	30 m	-	-	-	-
05	DG set (2x1875 KVA)	28.35 m				

C. Disposal of solid waste permitted in the following manner

Sl. No.	Type of Solid waste	Quantity generated (TPA)	Quantity to be reused on site(TPM)	Quantity to be reused off site(TPM)	Quantity dispose d off	Description of disposal site.
1.	Red Mud	2.5 MTPA	-	-	-	Red Mud pond
2.	Fly Ash & Bottom Ash	6.0 Lakh TPA	As per fly ash notification, 2009 and amendment thereof	-	-	Ash Pond
3.	Lime Grit	30,000 TPA	-	-	-	Supply to brick manufacturers

D. GENERAL CONDITIONS FOR ALL UNITS

1. The consent is given by the Board in consideration of the particulars given in the application. Any change or alternation or deviation made in actual practice from the particulars furnished in the application will also be the ground for liable to review/variation/revocation of the consent order under section 27 of the Water (Prevention & Control of Pollution) Act, 1974 and section 21 of Air (Prevention & Control of Pollution) Act, 1981 and to make such variations as deemed fit for the purpose of the Acts.
2. The occupier would immediately submit revised application for consent to operate to this Board in the event of any change in the quantity and quality of raw material / products / manufacturing process or quantity /quality of the effluent rate of emission / air pollution control equipment / system etc.
3. The applicant shall not change or alter either the quality or quantity or the rate of discharge or temperature or the route of discharge without the previous written permission of the Board.
4. The application shall comply with and carry out the directives/orders issued by the Board in this consent order without any negligence on his/her part. In case of non-compliance of any order/directives issued at any time and/or violation of the terms and conditions of this consent order, the applicant shall be liable for legal action as per the provisions of the Law.
5. The applicant shall make an application for grant of fresh consent at least 90 days before the date of expiry of this consent order.
6. The issuance of this consent does not convey any property right in either real or personal property or any exclusive privileges nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Central, State laws or regulation.
7. This consent does not authorize or approve the construction of any physical structure or facilities or the undertaking of any work in any natural water course.
8. The applicant shall display this consent granted to him in a prominent place for perusal of the public and inspecting officers of this Board.
9. An inspection book shall be opened and made available to Board's Officers during the visit to the factory.
10. The applicant shall furnish to the visiting officer of the Board any information regarding the construction, installation or operation of the plant or of effluent treatment system / air pollution control system / stack monitoring system any other particulars as may be pertinent to preventing and controlling pollution of Water / Air.
11. The applicant shall display suitable caution board at the place where the effluent is entering into any water-body or any other place to be indicated by the Board, indicating therein that the area into which the effluents are being discharged is not fit for the domestic use/bathing.
12. Storm water shall not be allowed to mix with the trade and/or domestic effluent on the upstream of the terminal manholes where the flow measuring devices will be installed.
13. The applicant shall maintain good house-keeping both within the factory and the premises. All pipes, valves, sewers and drains shall be leak-proof. Floor washing shall be admitted into the effluent collection system only and shall not be allowed to find their way in storm drains or open areas.
14. The applicant shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems install or used by him to achieve with the term(s) and conditions of the consent.
15. Care should be taken to keep the anaerobic lagoons, if any, biologically active and not utilized as mere stagnation ponds. The anaerobic lagoons should be fed with the required nutrients for effective digestion. Lagoons should be constructed impervious.
16. The utilization of treated effluent on factory's own land, if any, should be completed and there should be no possibility of the effluent gaining access into any drainage channel or other water courses either directly or by overflow.
17. The effluent disposal on land, if any, should be done without creating any nuisance to the surroundings or inundation of the lands at any time.
18. If at any time the disposal of treated effluent on land becomes incomplete or unsatisfactory or create any problem or becomes a matter of dispute, the occupier must adopt alternate satisfactory treatment and disposal measures.
19. The sludge from treatment units shall be dried in sludge drying beds and the drained liquid shall be taken to equalization tank.
20. The effluent treatment units and disposal measures shall become operative at the time of commencement of production.
21. The applicant shall provide port holes for sampling the emissions and access platform for carrying out stack sampling and provide electrical outlet points and other arrangements for chimneys/stacks and other sources of emissions so as to collect samples of emission by the Board or the applicant at any time in accordance with the provision of the Acts or Rules made therein.
22. The applicant shall provide all facilities and render required assistance to the Board staff for collection of samples / stack monitoring / inspection.

23. The applicant shall not change or alter either the quality or quantity or rate of emission or install, replace or alter the air pollution control equipment or change the raw material or manufacturing process resulting in any change in quality and/or quantity of emissions, without the previous written permission of the Board.

24 No control equipments or chimney shall be altered or replaced or as the case may be erected or re-erected except with the previous approval of the Board.

25. The liquid effluent arising out of the operation of the air pollution control equipment shall be treated in the manner so as to meet the standards prescribed by the Board In accordance with the provisions of Water (Prevention and Control of Pollution) Act, 1974 (as amended).

26. The stack monitoring system employed by the applicant shall be opened for inspection to this Board at any time.

27. There shall not be any fugitive or episodal discharge from the premises.

28. In case of such episodal discharge/emissions the occupier shall take immediate action to bring down the emission within the limits prescribed by the Board and stop the operation of the plant if required. Report of such accidental discharge /emission shall be brought to the notice of the Board within 24 hours of occurrence.

29. The applicant shall keep the premises and air pollution control equipments clean and make all hoods, pipes, valves, stacks/chimneys leak proof. The air pollution control equipments, location, inspection chambers, sampling port holes shall be made easily accessible at all times.

30. Any upset condition in any of the plant/plants of the factory which is likely to result in increased effluent discharge/emission of air pollutants and / or result in violation of the standards mentioned shall be reported to the Headquarters and Regional Office of the Board by E-mail within 2 hours of its occurrence.

31. The occupier has to ensure that minimum three varieties of trees are planted at the density of not less than 1000 trees per acre. The trees may be planted along boundaries of the premises. This plantation is stipulated over and above the bulk plantation of trees in that area.

32. The solid waste such as sweeping, wastage packages, empty containers residues, sludge including that from air pollution control equipments collected within the premises of the shall be disposed off scientifically to the satisfaction of the Board.

33. All solid wastes arising in the premises shall be properly classified and disposed off to the satisfaction of the Board by :

    i) Land fill in case of inert material, care being taken to ensure that the material does not give rise to leachate which may percolate into ground water or carried away with storm run-off.

    ii) Controlled incineration, wherever possible in case of combustible organic material.

    iii) Composting, in case of bio-degradable material.

34. Any toxic material shall be detoxicated if possible, otherwise be sealed in steel drums and buried in protected areas after obtaining approval of this Board in writing. The detoxication or sealing and burying shall be carried out in the presence of Board's authorized persons only. Letter of authorization shall be obtained for handling and disposal of hazardous wastes.

35. If due to any technological improvement or otherwise this Board is of opinion that all or any of the conditions referred to above requires variation (including the change of any control equipment either in whole or in part) this Board shall after giving the applicant an opportunity of being heard, vary all or any of such condition and thereupon the applicant shall be bound to comply with the conditions so varied.

36. The applicant, his/heirs/legal representatives or assignees shall have no claim whatsoever to the condition or renewal of this consent after the expiry period of this consent.

37. The Board reserves the right to review, impose additional conditions or condition, revoke change or alter the terms and conditions of this consent.

38. Notwithstanding anything contained in this conditional letter of consent, the Board hereby reserves to it the right and power under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 to review any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Act by the Board.

39. The conditions imposed as above shall continue to be in force until revoked under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 and section 21 A of Air (Prevention & Control of Pollution) Act, 1981.

40. In case the consent fee is revised during this period, the occupier shall pay the differential fees to the Board (for the remaining years) to keep the consent order in force. If they fail to pay the amount within the period stipulated by the Board the consent order will be revoked without prior notice.

41. The occupier shall comply to the conditions stipulated in CTE order issued by Odisha State Pollution Control Board and conditions stipulated in Environmental Clearances issued by MoEF&CC, Govt. of India.

42. The occupier shall abide by E(P) Act, 1986 and Rules framed there-under.

43. The Board reserves the right to revoke/refuse consent to operate at any time during period for which consent is granted in case any violation is observed and to modify/ stipulate additional conditions as deemed appropriate.

GENERAL CONDITIONS FOR UNITS WITH INVESTMENT OF MORE THAN Rs.50 CRORES, AND 17 CATEGORIES OF HIGHLY POLLUTING INDUSTRIES (RED A)

1. The applicant shall analyse the effluent / emissions and Ambient Air Quality every month through approved laboratory for the parameters indicated in TABLE- 'D', 'C' & Part -'B' as mentioned in this order and shall furnish the report thereof to the Board on monthly basis.
2. The following information shall be forwarded to the Member Secretary on or before 10th of every month.
   a) Performance / progress of the treatment plant.
   b) Monthly statement of daily discharge of domestic and/or trade effluent.
3. Non-compliance with effluent limitations
   a) If for any reason the applicant does not comply with or is unable to comply with any effluent limitations specified in this consent, the applicant shall immediately notify the consent issuing authority by telephone and provide the consent issuing authority with the following information in writing within 5 days of such notification.
      i) Causes of non-compliance
      ii) A description of the non-compliance discharge including its impact on the receiving waters.
      iii) Anticipated time of continuance of non-compliance if expected to continue or if such condition has been corrected the duration or period of non-compliance.
      iv) Steps taken by the applicant to reduce and eliminate the non complying discharge and
      v) Steps to be taken by the applicant too prevent the condition of non-compliance.
   b) The applicant shall take all reasonable steps to minimize any adverse impact to natural waters resulting from non-compliance with any effluent limitation specified in this consent including such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge.
   c) Nothing in this consent shall be construed to relieve the applicant from civil or criminal penalties for non-compliance whether or not such non-compliance is due to factors beyond his control, such as break down, electric failure, accident or natural disaster.
4. Proper housekeeping shall be maintained inside the factory premises including process areas by a dedicated team.
5. The occupier must constitute a team of responsible and technically qualified personnel who will ensure continuous operation of all pollution control devices round the clock (including night hours) and should be in a position to explain the status of operation of the pollution control measures to the inspecting officers of the Board at any point of time. The name of these persons with their contact telephone numbers shall be intimated to the concerned Regional Officer and Head Office of the Board and in case of any change in the team it shall be intimated to the Board immediately.
6. The occupier shall engage dedicated qualified manpower to ensure continuous and effective operation of online stack / Ambient Air Quality / Effluent monitoring stations for maintenance of database, real time data transfer to SPCB server, data analysis and co-ordination with concerned personnel of process units for taking corrective measures in case of non-compliances and to respond to the instructions of SPCB in this matter.

E. SPECIAL CONDITIONS:

1. The ESPs installed at the Calciners and Boilers of power plant be operated efficiently so as to meet the prescribed standard. Online monitoring system shall be installed at the appropriate places for monitoring of particulate matter (PM) emission, SO_2, NOx and CO etc. The monitoring system shall be hooked to SPCB.
2. The industry shall not to take up installation and commissioning activities of Calciner III and dyke height raising of process water lake without prior approval of the board.
3. In plant control measures to be taken for minimization of generation of caustic aerosols from the cooling towers.
4. Appropriate dust extraction / suppression system shall be installed at all potential dust generating sources of bauxite handling area, lime handling area, coal handling area and alumina handling areas. The pollution control system shall be operated and maintained properly to avoid generation of fugitive dust from these areas.
5. All internal roads shall be made concrete to prevent generation of dust during movement of vehicle. Periodical water sprinkling shall also be done on all internal roads to suppress the dust generation.
6. The industry shall provide necessary acoustic enclosures at appropriate places to control overall noise level. The overall noise levels shall be kept well within the standards of 75dB (A) during day time (06.00 AM-10.00 PM) and 70dB (A) during night time (10.00 PM-06.00 AM).
7. The water spraying facility shall be provided in the red mud pond and ash pond to keep the red mud and ash surface wet to prevent dust from being air borne.
8. Ambient air quality shall meet the prescribed standards of the Board. At least six continuous ambient air quality monitoring stations shall be established and monitoring shall be carried out as per the guidelines of National Ambient Air Quality Standards. The continuous monitoring system shall be linked to SPCB.
9. In case coal / bauxite is received through trucks, tippers etc., the same shall be done under covered condition without overloading to avoid dust emission and spillage on the road.
10. In case of transportation of fly ash through trucks, tippers, it shall be done so under covered condition to avoid any spillage and dust emission. Dry fly ash shall be unloaded from the ash silos with the help of telescopic chutes to avoid dust emission.
11. There shall not any discharge of process wastewater from the industry to outside. Extensive measures shall be undertaken for wastewater reuse and recycle to ensure zero effluent discharge.
12. Both red mud and ash shall be disposed of using HCSD technology in the red mud pond and ash pond respectively. The desired consistency for HCSD shall always be maintained.

13. Greater safety and stability of the dykes of red mud pond, ash pond, process Water Lake and dirty water pond shall be ensured. Safety and stability of dykes of all ponds / lakes shall be studies through a competent agency from time to time and action if required shall be taken accordingly.
14. The industry shall make provision to prevent any inflow of surface run-off entering into the red mud pond, process Water Lake, dirty water pond and ash pond.
15. The decanted water from the ash pond shall be reused. Under no circumstances water from the ash pond shall be discharged to outside. All necessary action shall be taken to prevent any seepage from the ash pond.
16. The extracted water from the red mud pond shall be collected in the process water lake and reutilized completely.
17. No seepage or overflow from the red mud pond, process Water Lake and dirty water pond to nearby areas or to any surface water bodies or on land shall be allowed under any circumstances. The industry shall take appropriate action to prevent generation of seepage water from these waste containment ponds / lakes. In case of seepage is notice, the industry shall immediately take appropriate remedial action and inform to the Regional Office for verification.
18. Steel lined collection system with reuse arrangement shall be provided at all alkaline wastewater conveying pipeline joints & valves for collection of leakages if any.
19. Adequate arrangement shall be made for collection of storm water from the entire plant area and reused in the process. The unit shall neutralize the storm water in the storm water pit before being discharged to outside in case of emergency or during monsoon and heavy rains after meeting the prescribed norm for discharge to inland surface.
20. Raising of existing red mud pond dyke (West Cell) shall be taken up as per the design of Indian Institute of Science, Bangalore submitted to the Board, vide your letter No. VAL/MK/11/047, Dt.08.04.2011.
21 The height of parapet walls at each process section shall be adequate enough to prevent any overflow of wastewater to outside of the process areas.
22. The Industry, within 3 months , has to provide online pH monitoring system at spill way of Clear water pond (Guard Pond) with auto acid dosing system at inlet end to neutralize the effluent particularly during rain, scheme for reuse of treated water from STP for dust suppression, gardening etc.
23. The industry shall prepare and implement within 6 months Rehabilitation Plan of RMP & Ash pond and its execution, prevent spillage of hydrated alumina, stop the problems of caustic fugitive dust emissions from Red mud stack and RMP, toe drains for collection of seepage from RMP shall be properly lined.
24. The industry shall install a full-fledged scheme for collection and recirculation of ash pond overflow effluent back to the plant for reuse within one year.

25. Appropriate and adequate measures shall be taken to minimize the seepage from ash pond.
26. Dumping of alkaline sludge near storm water drain or any other places shall not be allowed as it will contaminate run offs during monsoon.
27. The dirty water pond shall be full proof and there shall not be any seepages / leakages of the highly alkaline wastewater from the pond. In case seepage / leakage is noticed, immediate corrective action shall be taken to stop such seepage / seepage and the matter shall be informed to Regional Officer for verification.
28. Wastewater from the oil unloading area shall be adequately treated by providing oil separation unit and the treated water shall be completely reused.
29. Wastewater generated from the dust suppression system in bauxite and coal handling system if any shall be diverted to clear water pond for reuse.
30. Cooling water systems in all areas shall be completely recycled.
31. DM plant effluent, boiler and cooling tower blow shall be adequately treated so as to meet the prescribed standards and under E(P) Rules, 1986 and shall be suitably reused. Under no circumstances, discharge of treated water to outside shall be allowed.
32. Adequate numbers of observation wells shall be provided around ash pond, red mud pond, process water lake and dirty water pond for ground water monitoring. Monitoring report of ground water quality shall be submitted to the State Pollution Control Board on monthly basis.
33. The adequately treated effluent from the Sewage Treatment Plants (STPs) of the colony / township and plant shall be utilized for gardening / horticultural activities.
34. A plan shall be worked out for proper rehabilitation of red mud and ash pond when they are filled up and abandoned.
35. Rainwater harvesting shall be followed in the township for ground water recharging.
36. A green belt shall be made around the ash pond and red mud pond. Similarly green belt shall be developed on all sides of the plant.
37. A garland drain of adequate size shall be constructed around the refinery plant outside the boundary wall so that run off from the nearby area can be prevented from entering the refinery premises.
38. Treatment system for wastewater generated from the laboratory shall be provided and the treated water be diverted to dirty water pond for reuse.
39. Backwash water of raw water treatment plant, if any, shall be treated and reused.
40. Water quality of upstream and downstream of river Vansadhara shall be monitored and the report shall be submitted to the Board.
41. The unit shall obtain authorization from the Board under the Hazardous & Other Wastes (Management and Transboundary Movement) Rules, 2016.

42. Non-hazardous solid wastes generated from the plant shall be stored and disposed of properly.
43. The industry shall comply with the provisions of Fly Ash Utilisation Notification, 2009 and amendments thereof.
44. All the recommendations of the Charter on Corporate Responsibility for Environmental Protection (CREP) for the alumina sector shall be strictly implemented.
45. The industry shall abide by the Environment (Protection) Act, 1986 and Rules framed thereunder.
46. In case the consent fee is revised upward during this period, the industry shall pay the differential fees to the Board (for the remaining years) to keep the consent order in force. If they fail to pay the amount within the period stipulated by the Board the consent order will be revoked without prior notice.
47. The Board reserves the right to revoke / refuse consent to operate at any time during period for which consent is granted in case any violation is observed and to modify/ stipulate additional conditions as deemed appropriate.

To

The Group CFO,
M/s Vedanta Limited (Alumina Refinery Unit),
At/PO-Lanjigarh, Via-Viswanathpur,
Dist-Kalahandi-766027, Odisha

25/3/21

SR. ENV. ENGINEER (L-I)
STATE POLLUTION CONTROL BOARD, ODISHA

Memo No._____/Dt._____/

Copy forwarded to:

i) Regional Officer, SPC Board, **Rayagada**
ii) District Collector, **Kalahandi**
iii) D.F.O., **Kalahandi**
iv) Deputy Director of Mines, **Bhawanipatna**
v) SES(L), SPC Board, Bhubaneswar
vi) H.S.M. Cell, (Head Office)

SR. ENV. ENGINEER (L-I)
STATE POLLUTION CONTROL BOARD, ODISHA

GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENT POLLUTANTS

Annexure-I

GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENTAL POLLUTANTS PART - A : EFFLUENTS

Sl.No.	Parameters	Standards			
		Inland surface	Public sewers	Land for irrigation	Marine Costal Areas
		(a)	(b)	(c)	(d)
1.	Colour & odour	Colourless/ Odourless as far as practible	--	See 6 of Annex-1	See 6 of Annex-1
2.	Suspended Solids (mg/l)	100	600	200	a. For process wastewater – 100 b. For cooling water effluent 10% above total suspended matter of influent.
3.	Particular size of SS	Shall pass 850	--	--	--
5.	pH value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
6.	Temperature	Shall not exceed 5^0C above the receiving water temperature	--	--	Shall not exceed 5^0C above the receiving water temperature
7.	Oil & Grease mg/l max.	10	20	10	20
8.	Total residual chlorine	1.0	--	--	1.0
9	Ammonical nitrogen (as N) mg/l max.	50	50	--	50
10.	Total Kajeldahl nitrogen (as NH_3) mg/l max.	100	--	--	100
11.	Free ammonia (as NH_3) mg/l max.	5.0	--	--	5.0
12.	Biochemical Oxygen Demand (5 days at (20^0C) mg/l max.	30	350	100	100
13.	Chemical Oxygen Demand, mg/l max.	250	--	--	250
14.	Arsenic (as As) mg/l max.	0.2	0.2	0.2	0.2
15.	Mercury (as Hg) mg/l max.	0.01	0.01	--	0.001

Sl.No.	Parameters	Standards			
		Inland surface	Public sewers	Land for Irrigation	Marine Costal Areas
		(a)	(b)	(c)	(d)
16.	Lead (as pb) mg/l max	01	1 0		2 0
17.	Cardmium (as Cd) mg/l max.	2.0	1.0	--	2.0
18.	Hexavalent Chromium (as Cr + 6) mg/l max.	0. I	2.0		1.0
19.	Total Chromium (as Cr) mg/l max.	2.0	2.0	--	2.0
20.	Copper (as Cu) mg/l max.	3.0	3.0	--	3.0
21.	Zinc (as Zn) mg/l max.	5.0	15	--	15
22.	Selenium (as Sc) mg/l max.	0.05	0.05	--	0.05
23.	Nickel (as Nil) mg/l max.	3.0	3.0		5.0
24.	Cyanide (as CN) mg/l max.	0.2	2.0	0.2	0.02
25.	Fluoride (as F) mg/l max.	2.0	15	--	15
26.	Dissolved Phosphates (as P) mg/l max.	5.0	--	--	--
27.	Sulphide (as S) mg/l max.	2.0	--	--	5.0
28.	Phennolic compounds as (C_6H_5OH) mg/l max.	1.0	5.0	--	5.0
29.	Radioactive materials a. Alpha emitter micro curle/ml. b. Beta emitter micro curle/ml.	10^{7} 10^{6}	10^{7} 10^{6}	10^{8} 10^{7}	10^{7} 10^{6}
30.	Bio-assay test	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent
31	Manganese (as Mn)	2 mg/l	2 mg/l	--	2 mg/l
32.	Iron (Fe)	3 mg/l	3 mg/l	--	3 mg/l
33.	Vanadium (as V)	0.2 mg/l	0.2 mg/l	--	0.2 mg/l
34.	Nitrate Nitrogen	10 mg/l	--	--	20 mg/l

Annexure-II

NATIONAL AMBIENT AIR QUALITY STANDARDS

Sl. No.	Pollutants	Time Weighed Average	Concentrate of Ambient Air		
			Industrial Residential, Rural and other Area	Ecologically Sensitive Area (notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1.	Sulphur Dioxide (SO_2), µg/m³	Annual *	50	20	-Improved west and Gaeke
		24 Hours **	80	80	- Ultraviolet fluorescence
2	Nitrogen Dioxide (NO_2), µg/m³	Annual *	40	30	- Modified Jacob & Hochheiser (Na-Arsenite)
		24 Hours **	80	80	- Chemiluminescence
3	Particulate Matter (size less than 10µm) or PM_{10}µg/m³	Annual *	60	60	Gravimetric - TOEM
		24 Hours **	100	100	- Beta Attenuation
4.	Particulate Matter (size less than 2.5µm) or $PM_{2.5}$ µg/m³	Annual *	40	40	-Gravimetric - TOEM
		24 Hours **	60	60	- Beta Attenuation
5	Ozone (O_3) µg/m³	8 Hours **	100	100	UV Photometric - Chemiluminescence
		1 Hours **	180	180	- Chemical Method
6.	Lead (Pb) µg/m³	Annual *	0.50	0.50	-AAS/ICP method after sampling on EMP 2000 or equivalent filter paper. - ED-XRF using Teflon filter
		24 Hours **	1.0	1.0	
7.	Carbon Monoxide (CO) mg/m³	8 Hours **	02	02	- Non Dispersive Infra Red (NDIR) Spectroscopy
		1 Hours **	04	04	
8.	Ammonia (NH_3) µg/m³	Annual*	100	100	-Chemiluminescence Indophenol Blue Method
		24 Hours**	400	400	
9.	Benzene (C_6H_6) µg/m³	Annual *	05	05	-Gas Chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10.	Benzo (a) Pyrene (BaP)-Particulate phase only, mg/m³	Annual*	01	01	-Solvent extraction followed by HPLC/GC analysis
11.	Arsenic (As), mg/m³	Annual*	06	06	-AAS/ICP method after sampling on EPM 2000 or equivalent filter paper
12.	Nickel (Ni), mg/m³	Annual*	20	20	-AAS/ICP method after sampling on EPM 2000 or equivalent filter paper

* Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

** 24 hourly or 08 hourly or 01 hourly monitored values, as applicable, shall be complied with 98% of the time in a year, 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.