



BY REGD. POST WITH AD

STATE POLLUTION CONTROL BOARD, ODISHA

[DEPARTMENT OF FOREST, ENVIRONMENT & CLIMATE CHANGE, GOVERNMENT OF ODISHA]

A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012

Phone-2561909, Fax: 2562822, 2560955 E-mail: paribesh1@ospcboard.org, Website: www.ospcboard.org

CONSENT ORDER

No. 4936 / IND-I-CON- 6640 Dt. 28.03.2023 /

CONSENT ORDER NO. 2853

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

Ref: **Your online application No.4509671, Dated 26.12.2022, online reply Dated 17.01.2023 and your letter No.ACBIL/HCW/OPCB/089, Dated 20.03.2023.**

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: **HEMGIRI COAL WASHERY OF M/S. ACB (INDIA) LTD,**

Name of the Occupier & Designation: **SRI SHYAM SUNDAR VERMA, DIRECTOR**

Address: **AT: KANIKA, PO: HEMGIRI ROAD, DIST: SUNDARGARH.**

This consent order is valid for the period **up to 31.03.2024**

This consent order supersedes the earlier consent order issued vide letter No.3359 dated 03.03.2022.

Details of the Plant

Sl. No.	Type of Plant	Production Capacity
01	Coal Washery	Washed Coal - 2.5 MTPA

This consent order is valid for the specified outlets, discharge quantity and quality, specified chimney/stack, emission quantity and quality of emissions as specified below. This consent is granted subject to the general and special conditions stipulated therein.



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

Out let No.	Description of outlet	Point of discharge	Quantity of discharge KLD or KL/hr	Pre-scribed Standard				
				pH	TSS (mg/l)	Oil & Grease (mg/l)	BOD (mg/l)	COD (mg/l)
01	Septic tank outlet (domestic effluent)	Soak pit	--	5.5 to 9.0	200	--	100	--
02	Wastewater generated from the processing units/surfaces run offs	No discharge to outside (100% recycling through storage)						

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

Chimney Stack No.	Description of Stack	Stack height (m)	Quantity of emission	Prescribed Standard		
				PM (mg/Nm ³)	SO ₂	NO _x

C. Disposal of solid waste permitted in the following manner

Sl. No.	Type of Solid waste	Quantity generated (MTPA)	Quantity to be reused on site (TPD)	Quantity to be reused off site (TPD)	Quantity disposed off (TPD)	Description of disposal site.
01	Low grade coal fines	--	--	--	---	To be sold to outside parties for use as raw material in the Boiler for generation of power.
02	Coal rejects	--	--	--	--	-do-



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 alteration or deviation made in actual practice from the particulars furnished in the application will also be the ground liable for review/variation/revocation of the consent order under section 27 of the Act of 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 industry 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 / and 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 and at all subsequent times without any negligence on his 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/Act.
 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. Meters must be affixed at the entrance of the water supply connection so that such meters are easily accessible for inspection and maintenance and for other purposes of the Act provided that the place where it is affixed shall in no case be at a point before which water has been tapped by the consumer for utilization for any purposes whatsoever.
 12. Separate meters with necessary pipe-line for assessing the quantity of water used for each of the purposes mentioned below:
 - a) Industrial cooling, spraying in mine pits or boiler feed.
 - b) Domestic purpose
 - c) Process
 13. 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.
 14. 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.
 15. 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.
 16. 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.
 17. 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 with sides and bottom made impervious.
 18. 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.
 19. 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.
 20. 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 industry must adopt alternate satisfactory treatment and disposal measures.
 21. The sludge from treatment units shall be dried in sludge drying beds and the drained liquid shall be taken to equalization tank.
 22. The effluent treatment units and disposal measures shall become operative at the time of commencement of production.
 23. 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 Act or Rules made therein.
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CONSENT ORDER
HEMGIR COAL WASHERY OF M/S. ACB (INDIA) LTD

24. The applicant shall provide all facilities and render required assistance to the Board staff for collection of samples / stack monitoring / inspection.
25. 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.
26. 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.
27. The liquid effluent arising out of the operation of the air pollution control equipment shall be treated in the manner and to ion of standards prescribed by the Board in accordance with the provisions of Water (Prevention and Control of Pollution) Act, 1974 (as amended).
28. The stack monitoring system employed by the applicant shall be opened for inspection to this Board at any time.
29. There shall not be any fugitive or episodal discharge from the premises.
30. In case of such episodal discharge/emissions the industry shall take immediate action to bring down the emission within the limits prescribed by the Board in conditions/stop the operation of the plant. Report of such accidental discharge remission shall be brought to the notice of the Board within 24 hours of occurrence.
31. The applicant shall keep the premises of the industrial plant 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.
32. 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 above shall be reported to the Headquarters and Regional Office of the Board by fax / speed post within 24 hours of its occurrence.
33. The industry 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 industries or industrial premises. This plantation is stipulated over and above the bulk plantation of trees in that area.
34. 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 industrial plants shall be disposed off scientifically to the satisfaction of the Board, so as no to cause fugitive emission, dust problems through leaching etc., of any kind.
35. 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.
36. 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.
37. 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.
38. The applicant, his/hers/legal representatives or assignees shall have no claim whatsoever to the condition or renewal of this consent after the expiry period of this consent.
39. The Board reserves the right to review, impose additional conditions or condition, revoke change or alter the terms and conditions of this consent.
40. 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.
41. 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.
42. 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.
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.



CONSENT ORDER
HEMGIR COAL WASHERY OF M/S. ACB (INDIA) LTD

Page 5 of 13

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 emissions every month for the parameters indicated in TABLE B & C as mentioned in this order and shall furnish the report thereof to the Board by the 10th of the succeeding month.
 2. The applicant shall provide and maintain at his own cost three ambient air quality monitoring stations for monitoring Suspended Particulate Matter, Sulphur Dioxide, Oxides of Nitrogen, Hydro-Carbon, Carbon-Monoxide and monitor the same once in a day/week/fortnight/month. The data collected shall be maintained in a register and a monthly extract be furnished to the Board.
 3. The applicant shall provide and maintain at his own cost a meteorological station to collect the data on wind velocity, direction, temperature, humidity, rainfall, etc. and the daily reading shall be recorded and the extract sent to the Board once in a month.
 4. The applicant shall forward the following information to the Member Secretary, State Pollution Control Board, Odisha, Bhubaneswar regularly:
 - a. Report of analysis of stack monitoring, ambient air quality monitoring meteorological data as required every month.
 - b. Progress on planting of trees quarterly.
 5. The applicant shall install mechanical composite sampling equipment and continuous flow measuring / recording devices on the effluent drains of trade as well as domestic effluent. A record of daily discharge shall be maintained.
 6. 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.
 7. 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:

Causes of non-compliance

 - i) A description of the non-compliance discharge including its impact on the receiving waters.
 - ii) 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.
 - iii) Steps taken by the applicant to reduce and eliminate the non-complying discharge and
 - iv) 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.
 8. The applicant shall at his own cost get the effluent samples collected both before and after treatment and get them analysed at an approval laboratory every month for the parameters indicated in Part-D and shall submit in duplicate the report thereof to the Board.
 9. The addition of various treatment chemicals should be done only with mechanical dosers and proper equipment for regulation of correct dosages determined daily and for proper uniform feeding. Crude practices such as dumping of chemicals in drains or sumps or trickling of acids or alkalis arbitrarily and utilizing poles for stirring etc. should not be resorted to.
 10. In the disposal of treated effluent on land for irrigation, the industry shall keep in view of the need for:
 - a. Rotation of crops
 - b. Change of point of application of effluent on land
 - c. A portion of land kept fallow
 11. The adoption of these would avoid soil becoming sick or slate, the industry may ensure this in consultation with the Agriculture Department.
 12. It is the sole responsibility of the industry to ensure that there are no complaints at any time from the ryots in the surrounding areas as a result of discharge of sewage or trade effluent if any.
 13. Proper housekeeping shall be maintained by a dedicated team.
 14. The industry 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.
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E. SPECIAL CONDITIONS:

- (I) 1. Dust suppression arrangement shall be provided on haul road and other working areas by using water sprinklers for control of dust emission.
 2. The industry shall provide dust extraction system or dust suppression system, preferably dry fog system at all strategic dust generation points such as loading and unloading points, all transfer points, conveyers etc. to suppress the dust.
 3. Fine atomizer nozzles arrangements for spraying of water shall be provided around coal stack yard and around the crusher/pulverizes to suppress the fugitive dust emission. All the conveyor transfer points shall be provided with enclosures.
 4. The industry shall provide instant shower system at the entrance of the plant in order to make the coal wet before its feeding into the receiving hopper.
 5. Adequate measures shall be taken for control of noise levels in the work environment of plant area so that the noise levels at the boundary of the premises shall not exceed 75dB(A) during day time(6AM to 10 PM) and 70 dB(A) during night time(10 PM to 6 AM).
 6. The ambient air quality shall remain within prescribed national ambient air quality standards.
 7. Adequate ambient air quality monitoring stations (four numbers) shall be established for monitoring PM₁₀, PM_{2.5}, SO₂, NO_x. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency for monitoring should be undertaken in consultation with the State Pollution Control Board.
 8. Monitoring data on ambient air quality and noise quality shall be submitted to the Board once in six months. Electronic display board shall be installed at the main gate of the plant for displaying the ambient air quality and noise monitoring data etc.
 9. The stack height of DG sets shall be raised as per the prescribed standards notified under E(P) Act, 1986.
 10. Appropriate preventive measures shall be taken for control of fire hazards at coal handling area.
 11. The industry shall provide garland drains around the plant boundary followed by settling pit in order to prevent direct discharge of washings to outside. Water from the settling pit shall be completely reused for plantation activity or process activity.
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12. The industry shall provide internal drains inside the plant for collection of surface runoff and it shall be used for plantation or process activity.
 13. Under no circumstances the industry shall discharge any wastewater to outside.
 14. Domestic wastewater shall be discharged to soak pit via septic tank constructed as per BIS specification.
 15. The washery rejects / coal rejects shall be sold to outside parties for use in any thermal power plants complying with the stipulated emission and fly ash norms as specified in Ministry of Environment, Forest and Climate Change Notification Number S.O.3305(E) dated the 7th December, 2015, read with the notification number S.O.763 (E), dated the 14th September, 1999 and its amendments [vide numbers S.O.979 (E), dated the 27th August, 2003, S.O. 2804 (E), dated 3rd November, 2009 and S.O. 254 (E), dated 25th January, 2016] and related subsequent notification and amendments issued from time to time". The details of disposal of coal rejects shall be submitted on annual basis in enclosed Format I & II.
 16. A quarterly report on the quantity and name of the power plants to whom the coal rejects are sent, shall be furnished to the Board for record.
 17. The unit shall submit the environment statement in the prescribed format every year.
 18. The unit shall submit a declaration by 30th of April every year that all pollution control systems are in good condition and operated & air quality, noise quality as well as wastewater quality confirm to the prescribed standards.
- (II) ADDITIONAL SPECIAL CONDITIONS AS PER MoEF&CC Letter No.J-11015/67/2013-IA.II(M), dated 22.02.2022**
1. The production capacity shall not exceed 2.5 MTPA from the date of issue of the letter of Ministry i.e. 22.02.2022.
 2. Road inside and at periphery of Washery plant shall be constructed of concrete only.
 3. Belt conveyor system shall be installed to transport washed/raw coal within 2 years from 22.02.2022.
 4. Transportation of rejects shall only be in 40 to 50 tonne trucks only if railway siding is not present at utilization points. If railway siding is available upto FBC Power Plants/ Thermal Power Plants, then no transportation shall be allowed by trucks.
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5. Transport of raw coal, clean coal and middling shall be by rail/road (in 40-50 tonnes dumpers only). Washed coal will be transported through private railway siding.
 6. Raw coal, washed coal and rejects shall be stored in covered silos facility. Fixed type high pressure sprinkler shall be installed in this storage yards.
 7. 5 nos. long ranging fog canon system (mist spraying) shall be installed to reduce the impact of air pollution on transportation route and Railway siding.
 8. Project Proponent shall comply 33% of the green belt plantation with trees within the plant boundary and plan of action to be submitted to Regional office of Ministry within six months. Accordingly, three Tier Green belt developments (of 50 mtrs width) in and around the periphery of washery within 3 years.
 9. Wildlife conservation plan for schedule I species in EIA report with allocated fund shall be submitted to State Forest Department. Fund allocated for this purpose shall also submitted within six months and a copy of receiving to be submitted to Ministry Regional office within three months.
 10. No Untreated wastewater should be discharged to the natural stream/water body and Water requirement for coal washery operations should not exceed 1200 KLD.
 11. High efficiency centrifuge, belt press filter, high frequency screening, and thickener shall be installed to separate coal fines and maximize water recovery.
 12. One continuous ambient air quality monitoring station (1 no. CAAQMS) shall be installed at suitable location preferably on village side. The real time data so generated shall be uploaded on company websites as well to SPCB server. In addition, data should also be displayed digitally at entry.
 13. Third party monitoring by reputed institute for air quality shall be carried out at identified locations, both ambient and the process area, to arrive the impact at regular interval of 3 years.
 14. Surface runoff from Storage yard of Coal, reject dumps shall be stored in settling tank and later treated before any usage and quality shall be checked frequently.
 15. Persons of nearby villages shall be given training on livelihood and skill development to make them employable.
 16. Proper roads, toilets facilities, plantation, solar lights, drinking water facilities, stationaries shall be provided to nearby villages, school and colleges.
 17. Wind barrier of atleast 10 mtr shall be provided along the boundary mainly where habitation is present to mitigate air pollution.
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CONSENT ORDER
HEMGIR COAL WASHERY OF M/S. ACB (INDIA) LTD

Page 9 of 13

18. Project Proponent should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground). A dedicated team to oversee environment management shall be setup which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis.

Chh
22/07/23

CHIEF ENV. ENGINEER (M)
STATE POLLUTION CONTROL BOARD, ODISHA

TO,

SRI SHYAM SUNDAR VERMA, DIRECTOR,
HEMGIRI COAL WASHERY OF M/S. ACB (INDIA) LIMITED,
AT: KANIKA, PO: HEMGIRI ROAD,
DIST: SUNDARGARH, ODISHA, PIN-770075

Memo No. _____ /Dated _____ /

Copy forwarded to :

- i) Regional Officer, State Pollution Control Board, Jharsuguda
- ii) District Collector, Sundargarh
- iii) Director of Mines, Govt. of Odisha, Bhubaneswar
- iv) Director, Environment-cum-Special Secretary, F & E. Deptt. Govt. of Odisha, Bhubaneswar.
- v) D.F.O, Sundargarh
- vi) Deputy Director of Mines, Rourkela
- vii) Chief Env. Scientist, Central Lab. SPCB, Bhubaneswar
- viii) Addl. Chief Env. Engineer, (Hazardous Waste Cell, Head Office)
- ix) Consent Register

ADDL. CHIEF ENV. ENGINEER
STATE POLLUTION CONTROL BOARD, ODISHA



**GENERAL STANDARDS FOR DISCHARGE OF
ENVIRONMENTAL POLLUTANTS**



**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 practicable	-----	See 6 of Annex-1	See 6 of Annex-1
2.	Suspended Solids (mg/l)	100	600	200	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°C above the receiving water temperature	-----	-----	Shall not exceed 5°C 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 Kjeldahl 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°C) mg/l max.	30	350	100	100
13.	Chemical Oxygen Demand, mg/l max.	250	----	-----	250
14.	Arsenic (as As) mg/1 max.	0.2	0.2	0.2	0.2
15.	Mercury (as Hg) mg/1 max.	0.01	0.01	-----	0.001
16.	Lead (as pb) mg/1 max.	01.	1.0	-----	2.0



CONSENT ORDER
HEMGIR COAL WASHERY OF M/S. ACB (INDIA) LTD

Page 12 of 13

Sl. No.	Parameters	Standards			
		Inland surface	Public sewers	Land for irrigation	Marine Costal Areas
		(a)	(b)	(c)	(d)
17.	Cardmium (as Cd) mg/l max.	2.0	1.0	-----	2.0
18.	Hexavalent Chromium (as Cr + 6) mg/l max.	0.1	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 ₆ H ₅ OH) mg/l max.	1.0	5.0	-----	5.0
29.	Radioactive materials				
	a. Alpha emitter micro curie/ml.	10 ⁷	10 ⁷	10 ⁸	10 ⁷
	b. Beta emitter micro curie/ml.	10 ⁶	10 ⁶	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



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/m ³	Annual * 24 Hours **	50 80	20 80	- Improved west and Gacke - Ultraviolet fluorescence
2.	Nitrogen Dioxide (NO ₂), µg/m ³	Annual * 24 Hours **	40 80	30 80	- Modified Jacob & Hochheiser (Na-Arsenite) - Chemiluminescence
3.	Particulate Matter (size less than 10µm) or PM ₁₀ µg/m ³	Annual * 24 Hours **	60 100	60 100	- Gravimetric - TOEM - Beta Attenuation
4.	Particulate Matter (size less than 2.5µm) or PM _{2.5} µg/m ³	Annual * 24 Hours **	40 60	40 60	- Gravimetric - TOEM - Beta Attenuation
5.	Ozone (O ₃) µg/m ³	8 Hours ** 1 Hours **	100 180	100 180	- UV Photometric - Chemiluminescence - Chemical Method
6.	Lead (Pb) µg/m ³	Annual * 24 Hours **	0.50 1.0	0.50 1.0	- AAS/ICP method after sampling on EMP 2000 or equivalent filter paper. - ED-XRF using Teflon filter
7.	Carbon Monoxide (CO) mg/m ³	8 Hours ** 1 Hours **	02 04	02 04	- Non Dispersive Infra Red (NDIR) Spectroscopy
8.	Ammonia (NH ₃) µg/m ³	Annual* 24 Hours**	100 400	100 400	- Chemiluminescence - Indophenol Blue Method
9.	Benzene (C ₆ H ₆) µg/m ³	Annual *	05	05	- Gas Chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10.	Benzo (a) Pyrene (BaP)- Particulate phase only, ng/m ³	Annual*	01	01	- Solvent extraction followed by HPLC/GC analysis
11.	Arsenic (As), ng/m ³	Annual*	06	06	- AAS/ICP method after sampling on EPM 2000 or equivalent filter paper
12.	Nickel (Ni), ng/m ³	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.

