

JKCW/MGR/PC/ESR/21/22-23

Reg

Date: 23/09/2023

To,
The Member Secretary
Rajasthan State Pollution Control Board
4, Industrial Area
Jhalana Doongri
Jaipur - 302004 (Raj)

Sub: Submission of Environmental Statement Report in Form-V for Financial Year 2022-2023 by
M/s JK Cement Works, Mangrol **Cement Plant 29.1 WHRB(Waste Heat Recovery Based Power Plant)**, in Mangrol Village, Tehsil Nimbahera, Chittorgarh and Rajasthan-312601.

Ref.:

1. F (Tech)/Chittorgarh (Nimbahera)/11(1)/2018-2019/4400-4402,
Order no. 2019 2020/CPM/5599, Dated 04/02/2020.

Dear Sir,
With reference to the above cited subject, we M/s. J.K. Cement Works, Mangrol, Cement Plant 29.1MW WHRB hereby submitting the Environmental Statement Report in Form-V for Financial Year 2022-2023 as per, Rule No 14 of The Environment (Protection) Rules, 1986, EC, CTO order. This is for your information please.

Thanking You
Yours Faithfully
For J.K. Cement Works, Mangrol



R. B. M. Tripathi
Unit Head & President (Operations).

Encl: Form-V Environment Statement report.

Copy: The Regional Officer, Rajasthan State Pollution Control Board, Near FCI Godown, Chanderiya, Dist. - Chittorgarh (Raj)-312021.



Corporate Office

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ENVIRONMENTAL STATEMENT

FORM - V

Environmental Statement for the financial year 2022-23, ending the 31st March 2023

PART-A

i. Name an address of the owner/occupier of the industry operation or process	Sh. R.B.M.Tripathi Unit Head & President (Operations) J.K. Cement Works, Mangrol 29.1 MW Waste Heat Recovery System Village Mangrol, Tehsil-Nimbahera District- Chittorgarh ,Rajasthan , Pin code- 312617
ii. Industry category Primary - (STC Code) Secondary - (STC Code)	Red Category Industry Electric Power generation through waste Heat Recovery Based Power Plant.
iii. Production capacity	29.1 MW Electric Power generation
iv. Year of establishment-	Year - 2020
v. Date of last environmental statement submitted	19 th September 2022

PART-B

WATER AND RAW MATERIAL CONSUMPTION

i. WATER CONSUMPTION in m³/day

Process	: -	Nil
Cooling	: -	460 m ³ /day (Bolier-300 KLD, Cooling-160 KLD)
Domestic	: -	Nil

Name of products	Process water consumption per unit of products (For cooling & domestic)	
	During the previous financial year (2021-22) (KL/MWh)	During the current financial year (2022-23) (KL/MWh)
1. Power (Electricity)	0.334	0.333

Month & Year	Water Consumption M3	Electric Power in MW	Specific Water Consumption per MW
Apr-22	2,688	12046.9	0.612
May-22	2,768	17760.98	0.447
Jun-22	1,624	18290.03	0.249
Jul-22	2,284	14830.43	0.393
Aug-22	2,276	12090.16	0.459
Sep-22	2,180	16400.01	0.327
Oct-22	2,048	19435.88	0.269
Nov-22	2,153	16767.44	0.343
Dec-22	2,304	16219.38	0.355
Jan-23	1,507	17081.33	0.207
Feb-23	1,593	15554.5	0.283
Mar-23	1,440	18694.45	0.195
TOTAL	24,865	195171.5	0.333

ii. **RAW MATERIAL CONSUMPTION**

Name of raw material	Name of products	Consumption of raw material per unit of output	
		During the previous financial year (2021-22)	During the current financial year (2022-23)
Waste hot gases from Kiln & Cooler	Power (Electricity)	Waste heat recovered from Kiln-1, Kiln-2 ,Kiln-3 ,Cooler -1 , Cooler -2 & Cooler-3 (Waste hot gases depends up on availability)	

PART-C

POLLUTION DISCHARGE TO ENVIRONMENT / UNIT OF OUTPUT

Pollutants	Quantity of pollutants discharged (Ton/Day)	Concentration of pollutants in discharge (mg/Nm3)	Percentage of variation from prescribed standards with reasons
(a) Water	Effluent waste water generated from blow down of cooling tower and DM plant waste water treated in neutralization pit as prescribed by Rajasthan State Pollution Control Board and treated water is being utilized in cement plant in cooling purpose, hence maintaining Zero Liquid Discharge unit.		
(b) Air	Waste heat recovery power plant has no any stack , hence it is not applicable		

Month/ Year	Ambient Air Quality Monitoring Results for the financial year 2022-2023																			
	NEAR TIME OFFICE (Up Wind)					NEAR THERMAL POWER PLANT (Cross Wind)					NEAR FACTORY GATE (Down Wind)					NEAR COLONY GATE (Cross Wind)				
	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO
Apr-22	42.5	30.9	11.1	14.8	599.2	39.9	28.6	9.9	11.6	533.1	45.8	34.8	13.1	17.6	617.0	40.6	31.6	10.7	13.8	646.3
May-22	46.3	34.2	14.4	18.4	624.7	42.0	31.6	12.3	15.2	581.4	51.1	38.7	16.0	23.7	647.6	43.3	33.1	13.2	16.2	670.5
Jun-22	48.4	37.6	16.2	20.1	638.7	40.7	29.5	11.5	13.5	608.1	56.2	42.3	17.8	27.3	657.7	45.1	36.5	12.2	15.9	683.2
Jul-22	41.0	28.7	13.2	17.9	618.3	37.8	25.7	10.9	12.9	597.9	52.3	40.1	15.6	22.3	633.6	39.0	28.9	11.2	14.7	622.1
Aug-22	31.3	22.6	9.8	12.8	582.7	26.5	19.6	8.0	10.8	524.2	43.9	31.0	12.3	18.4	614.5	28.7	17.8	10.1	14.8	657.7
Sep-22	40.2	29.3	14.0	28.0	694.6	43.7	30.5	18.0	23.2	664.1	50.4	32.8	13.1	24.1	760.8	45.3	31.5	12.6	25.0	709.9
Oct-22	50.4	35.5	14.8	26.1	702.3	50.7	32.1	19.9	28.1	723.9	52.1	32.9	18.1	26.5	760.8	47.6	27.1	16.7	25.4	653.9
Nov-22	43.7	23.4	17.1	21.9	694.6	44.6	26.1	17.7	31.5	715.0	38.7	27.9	11.5	22.6	603.0	41.2	31.1	10.7	19.1	746.8
Dec-22	43.9	31.2	20.2	21.3	638.7	46.6	30.8	22.7	23.4	713.7	34.7	23.6	20.7	20.7	638.7	35.6	24.7	22.7	23.3	698.5
Jan-23	50.9	30.6	12.3	23.6	656.9	56.4	42.3	12.3	19.8	654.1	61.9	31.2	12.5	21.0	656.9	54.1	31.4	15.0	17.8	692.7
Feb-23	55.2	21.6	12.5	20.7	632.6	57.5	26.7	15.0	28.0	568.0	51.5	33.0	13.9	21.8	635.6	53.4	27.7	16.5	24.6	579.0
Mar-23	58.0	31.9	16.2	26.1	438.0	60.3	32.7	17.5	25.3	455.1	60.5	35.5	19.1	26.1	476.6	54.2	26.0	11.3	14.7	373.6
Yearly AVG	46.0	29.8	14.3	21.0	626.8	45.6	29.7	14.6	20.3	611.6	49.9	33.6	15.3	22.7	641.9	44.0	28.9	13.6	18.8	644.5
% of Deviation wrt standard	-23%	-70.2%	-71%	-48%	CO 1 Hr Standard is 4000 µg/M ³	-24%	-70.3%	-71%	-49%	CO 1 Hr Standard is 4000 µg/M ³	-17%	-66.4%	-69%	-43%	CO 1 Hr Standard is 4000 µg/M ³	-27%	-71.1%	-73%	-53%	CO 1 Hr Standard is 4000 µg/M ³
NAAQMS Yearly Avg Standard Limit	PM ₁₀ =60 µg/M3					PM _{2.5} = 40 µg/M3					SO ₂ =50 µg/M3					NO _x =40 µg/M3				

***Plant has situated in existing Cement plant premises

Neutralization pit treated waste water yearly average Analysis report

S.No.	PARAMETERS	RPCB Limits	AVERAGE
1	pH	Between 6.5 to 8.5	7.62
2	Total Suspended Solids (TSS)	Not to exceed 100 mg/l	22.24
3	Oil & Grease	Not to exceed 20 mg/l	<0.7
4	Bio-Chemical Oxygen Demand (BOD) (3 Days at 270C)	Not to exceed 30 mg/l	10.78
5	Chemical Oxygen Demand (COD)	Not to exceed 250 mg/l	59.74
6	Phosphate	Not to exceed 5 mg/l	0.46
7	Iron (as Fe)	Not to exceed 1.0 mg/l	0.35
8	Total Chromium (as Cr)	Not to exceed 0.2 mg/l	0.07
9	Free Available chlorine	Not to exceed 0.5 mg/l	<0.03
10	Copper as (Cu)	Not to exceed 1.0 mg/l	<0.03
11	Zinc (Zn)	Not to exceed 1.0 mg/l	<0.02
12	Temperature	Not more than 5 °C higher than the intake water temperature	4° C Higher than the intake water

Noise level monitoring data

Month & Year	Noise Monitoring Report FY 2022-23							
	Near Time office		Near Thermal Power Plant		Near Raw Material Gate		Near Packing Plant Gate	
	Day	Night	Day	Night	Day	Night	Day	Night
Apr-22	61.5	52.3	58.3	47.1	63.2	55.8	65.3	58.9
May-22	59.7	45.1	56.7	46.8	66.8	53.7	61.3	49.2
Jun-22	64.2	53.9	67.1	53.1	66.2	52.7	63.9	48.6
Jul-22	62.3	48.7	60.4	45.7	64.5	50.4	67.8	59.7
Aug-22	63.2	49.1	59.7	42.9	65.3	51.7	68.2	60.8
Sep-22	63.9	50.5	61.1	46.8	66.4	53.4	64.7	56.3
Oct-22	61.6	49.3	60.2	46.5	65.7	52.6	61.4	44.8
Nov-22	61.3	49.6	59.7	46.3	64.9	52.4	60.2	43.1
Dec-22	60.7	48.8	59.5	46.1	64.4	52.2	60.1	43.3
Jan-23	69.5	52.3	62.6	52.1	68.8	50.8	61.2	48.6
Feb-23	65.2	55.3	69.1	50.1	67.3	54.5	65.4	53.3
Mar-23	65.4	51.8	64.3	52.1	68.9	53.1	60.1	45.01
Avg	63.21	50.56	61.56	47.97	66.03	52.78	63.3	50.97
Ambient Noise Standard							75dBA	70 dBA

PART-D

(As specified under Hazardous & Other Waste Management Rules-2016)

Hazardous waste	Total Quantity	
	During previous financial year (2021-22) (KL)	During current financial year (2022-23) (KL)
(a) From process	Used oil (5.1)- 5* Waste oil (5.2)- 31.6*	Used oil (5.1)- * 7.6KL Waste oil (5.2)- *4.4 KL
(b) From pollution Control facilities	Not applicable	Not applicable

***The hazardous wastes generated are used/waste oil from lines 1, 2, and 3 of cement plants, CPP, WHRS, limestone mines, etc. The hazardous waste generated is sold through CPCB certified recyclers.

PART-E **SOLID WASTE**

Total Quantity			
		During previous financial year (2021-22) (MT/Year)	During current financial year (2022-23) (MT/Year)
(a)	From process	Not applicable	Not applicable
(b)	From pollution control facility	Not applicable	Not applicable
(c)	Quantity reutilized with in the unit	Not applicable	Not applicable

PART-F

PLEASE SPECIFY THE CHARACTERISATIONS (IN TERMS OF COMPOSITION AND QUANTUM) OF HAZARDOUS AS WELL AS WASTES AND INDICATE DISPOSAL PRACTICE ADOPTED FOR BOTH THESE CATEGORIES OF WASTES.

- 1) Hazardous waste generated in the form of used Oil / spent oil, waste / residue containing oil, which is stored in barrels at safe & dedicated area and sold to Authorized recycler approved by Central Pollution Control Board.
- 2) Waste hot gas release from Kiln & Cooler section totally use for power generation by WHRS.
- 3) Effluent waste water generated from blow down of cooling tower and DM plant waste water treated in neutralization pit as prescribed by Rajasthan State Pollution Control Board and treated water is being utilized in cement plant in Mill Spray purpose, hence maintaining Zero Liquid Discharge unit.

PART-G

IMPACT OF THE POLLUTION ABATEMENT MEASURES TAKEN ON CONSERVATION OF NATURAL RESOURCES AND ON THE COST OF PRODUCTION.

Industry have installed neutralization pit for proper treatment of trade effluent & treated water quality meet the norms prescribed by Rajasthan State Pollution Control Board. Treated water is being utilized in process and machinery cooling purposes.

PART-H

ADDITIONAL MEASURES / INVESTMENT PROPOSALS FOR ENVIRONMENTAL PROTECTION INCLUDING ABATEMENT POLLUTION, PREVENTION OF POLLUTION.

- 1) Air Cooled condenser installed.

PART-I

ANY OTHER PARTICULARS FOR IMPROVING THE QUALITY OF ENVIRONMENT

- 1) Effluent water quality monitoring is being done regularly as mentioned in consent to operate.
- 2) 4 nos. of Continuous Ambient Air Quality Monitoring Systems (CAAQMS) has been installed at periphery of the plant.
- 3) Effluent generated from the cooling tower blow down and DM plant waste water is being treated through neutralization and used in cement plant for cooling purpose, hence maintaining Zero Liquid Discharge Unit (ZLD).
- 4) Proper Housekeeping and cleaning is being done with the help of three road sweeping machines.
- 5) Domestic waste water generated is being treated in sewage treatment plant (STP). Treated water is utilized for plantation / horticulture development.
- 6) 16 Rain water harvesting structures have been constructed in plant and colony area to recharge ground water.
- 7) Cemented road constructed to avoid fugitive dust generation during the movement of vehicle.
- 8) Telemetry system installed for online ground water level monitoring.
- 9) 10,723 plants were planted in this plant and a colony of which 4,745 plants will be located at the Miyawaki Plantation in FY 2022-2023.
- 10) Oxygen generation plant installed to catch the requirement of Oxygen during Covid-19.
