JSW Energy (Barmer) Limited
Vill. & Post : Bhadresh, Post Box No.30, Distt : Barmer-344001 (Raj.)
CIN: U31102MH1996PLC185098
Phone: +91 2982 229100
Fax : +91 2982 229222
Website : www.jsw.in

Ref: JSWE(B)L/ENV/2024-25/012 **Date: 14.06.2024**

To,

Member Secretary
Rajasthan State Pollution Control Board
4-Institutional Area, Jhalana Doongari,
Jaipur - 302004

Sub: Environmental Statement 2023 – 2024. **UNIT ID – 5276**

Dear Sir,

We herewith enclose duly filled Form-V of Environmental statement of JSWE(B)L for the financial year 2023 - 2024.

Please acknowledge the same.

Thanking You,
Your Faithfully

For JSW Energy (Barmer) Ltd.

Dipak Patil
General Manager – Environment & Chemistry

Enclosure

Form – V
Annexure I Characterization of solid waste **– Fly Ash & Bed Ash**
Annexure II CEMS Data for Eight Units
Annexure III Water Utilization Data
Annexure IV Effluent Water Quality
Annexure V Ash Management Data
Annexure VI Form-4 of Haz. Waste Management

CC. Regional Officer, RSPCB - Balotara

F O R M - V
(See Rule 14)

From:

Dipak Patil
General Manager (Env & Chem),
JSW Energy (Barmer) Limited
Village Bhadresh
Tehsil-Barmer
Dist. Barmer – 344 001

To:

Environment Engineer
Rajasthan State Pollution Control Board, 4,
Institutional Area",
Jhalan Dungari,
Jaipur, Rajasthan-302 004

Environmental Statement for the financial year 2023-2024

PART – A

(i)	**Name and address of the owner / occupier of the industry operation or process**	**:**	**VEERESH DEVARAMINI JSW Energy (Barmer) Limited Village- Bhadresh, Tehsil- Barmer. Dist. – Barmer-344 001**
(ii)	**Industry category – Primary – (STC Code) Secondary – (SIC Code)**	**:**	**8 x 135 MW (1080 MW) Lignite based Power Plant.**
(iii)	**Production capacity Units**	**:**	**8 x 135 MW**
(iv)	**Year of establishment**	**:**	**28.2.2007**
(v)	**Date of the last Environmental Statement submitted**	**:**	**19.06.2023**

PART – B

Water and Raw Material Consumption

(1) Water consumption M^3 / day

Water Consumption (m^3/day)	During the Previous financial year (2022-23)	During the current financial year (2023-24)
Process (for DM Water)	**1627**	**1661**
Cooling (From CW)	**45813**	**45704**
Domestic	**104**	**103.8**

Name of Products	Raw water consumption	
	During the Previous financial year (2022-23)	During the current financial year (2023-24)
Power - KL/MW	**2.63**	**2.45**

(ii) Raw material consumption

Name of raw material	***Name of products***	Consumption of raw material per unit of output	
		During the Previous financial year (2022-23)	During the current financial year (2023-24)
		(1)	(2)
Coal Cons. MT/MW	Power	**0.820**	**0.829**
Oil Cons. KL/MW		**0.000077**	**0.000099**

a.

b. PART – C

Pollution discharged to environment / unit of output
(Parameter as specified in the consent issued)

Pollutants	Quantity of pollutants discharged (mass/day)	Concentration of pollutants in discharged (mass / volume)		Percentage of variation from prescribed standards with reasons
(a) Water		**Suspended Solids**	**41.5 mg/lit**	**Within limit**
		Oil & Grease	**< 0.15 mg/lit**	
		Total Copper	**0.015 mg/lit**	
		Total Iron	**0.021 mg/lit.**	
		Free available Chlorine	**<0.2 mg/lit**	
		Zinc	**0.057 mg/lit**	
		Hexavalent Chromium	**ND**	
		Total Chromium	**ND**	

(b) Air **SPM** **SO2** **NOx**		SPM: ⇒ Unit-1 36.4 mg/Nm³ ⇒ Unit-2 37.8 mg/Nm³ ⇒ Unit-3 39.5 mg/Nm³ ⇒ Unit-4 42.2 mg/Nm³ ⇒ Unit-5 38.5 mg/Nm³ ⇒ Unit-6 42.5 mg/Nm³ ⇒ Unit-7 38.9 mg/Nm³ ⇒ Unit-8 37.8 mg/Nm³ SO2: at 6% O2 Ref. ⇒ Unit-1 452.1 mg/Nm³ ⇒ Unit-2 441.8 mg/Nm³ ⇒ Unit-3 462.8 mg/Nm³ ⇒ Unit-4 410.6 mg/Nm³ ⇒ Unit-5 429.8 mg/Nm³ ⇒ Unit-6 464.2 mg/Nm³ ⇒ Unit-7 452.3 mg/Nm³ ⇒ Unit-8 478.3 mg/Nm³ NOx: at 6% O2 Ref. ⇒ Unit-1 125.1 mg/Nm³ ⇒ Unit-2 129.5 mg/Nm³ ⇒ Unit-3 139.8 mg/Nm³ ⇒ Unit-4 134.6 mg/Nm³ ⇒ Unit-5 148.7 mg/Nm³ ⇒ Unit-6 139.8 mg/Nm³ ⇒ Unit-7 137.9 mg/Nm³ ⇒ Unit-8 131.5 mg/Nm³	Within limit

PART – D

[As specified under Hazardous Wastes (Management and Handling) Rules, 1989]

Hazardous Waste		Total Quantity (Kg.)	
		During the current financial year (2022-23)	During the current financial year (2023-24)
(a)	**From process** **(i) Waste oil** **(ii) Used Batteries (lead acid)** **(iii) Waste Resin** **(iv) Discarded drum**	15950	4250
(b)	**From pollution control facilities**	---N. A---	---N. A---

PART – E

Solid Waste

	Total Quantity (MT.)	
	During the Previous financial year (2022-23)	During the current financial year (2023-24)
(a) From process	**911807**	**867407**
(b) From pollution control facilities		
(c) (1) Quantity recycled or re-utilized within the unit.	**Nil**	**Nil**
(2) Solid (Sold to cement & ash-based manufacturer units)	**947667**	**872005**
(3) Disposed (In Ash Pond)	**0.0**	**0.0**

PART – F

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

1. Characterizations of Hazardous waste**: - USED Lubricating Oil**

2. Disposal Method**: - --- N.A --- (Selling to CPCB approved used Oil recycler)**

3. Characterizations of solid waste**: - The constituents of fly ash and bottom ash generated are enclosed herewith – Annexure – I**

4. Disposal Method**: -**

   (a) Dry Ash Disposal**: - Fly ash & bed ash is collected in silos & dispose through closed container.**

   (b) Ash utilized / disposal off as under.

      (i) Giving to nearby cement industries and manufacturing of ash-based products like bricks etc.

      (ii) Utilized in miscellaneous work like concrete, approach road, filling in low-lying area etc. in the power plant.

PART – G

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

1. **Adopted Dry Ash Disposal**

   (b) Reduce the cost of generation
   (c) Reduce consumption of water.
   (d) Appropriate utilization

2. **Using high purity lime for reduction and controlling of SO2 emission.**

3. **CFBC technology is adopted for reduction and controlling of NOx emission.**

4. **High efficiency electro static precipitators (ESP) are installed with 99.9 % efficiency.**

5. **A 122-meter-high Chimney is erected for better dispersion of emission.**

6. **Continuous emission monitors (CEMS) are installed to monitor the emission levels from stacks.**

   - **Three Continuous ambient air quality monitoring stations (CAAQMS) are installed inside the plant area to monitor the ambient air quality.**
   - **Three continuous ambient air quality monitoring station (CAAQMS) are installed our side the surrounding pant area to monitor the ambient air quality.**

6. **For reducing fugitive emission. Dust extraction systems are provided at each transfer points of coal conveyer belt, ash handling system. Bag filters are provided at strategic locations.**

7. **For reuse of waste water generated – Effluent Treatment Plant is in operation**

8. **Dust Suppression Water Spraying system at Ash Pond & Lignite area provided for fugitive emission control.**

9. **Installed sensor-based vehicle water washing auto system, every ash bulker pass though water washing auto system to eliminate possibility of fugitive dust emissions**

PART – H

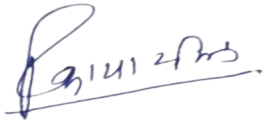
Additional measure / investment proposal for environmental protection including abatement of pollution prevention ofpollution.

1) **A green belt had been developed all around the plant boundary and ash pond covering an area of more than 154 Ha to control fugitive emission and sound pollution.**

2) **Three Continuous Ambient Air Quality Monitoring Stations (CAAQMS) installed outside the plant area in the impact zone.**

3) **RCC roads are being provided at all required location within the plant to control fugitive emissions.**

For JSW Energy (Barmer) Limited.



(DIPAK PATIL)
GM- ENV. & CHEM.

ANNEXURE-_II

Unit # 1 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Apr-23	Average	481.75	152.32	39.63
	Max	529.37	199.55	45.92
May-23	Average	468.11	144.51	35.82
	Max	538.54	212.45	45.88
Jun-23	Average	520.16	168.49	37.43
	Max	545.26	269.56	45.90
Jul-23	Average	509.36	177.96	36.93
	Max	537.09	237.49	45.78
Aug-23	Average	520.78	181.89	35.32
	Max	544.50	221.81	45.92
Sep-23	Average	505.28	196.80	34.93
	Max	536.53	237.83	44.83
Oct-23	Average	494.48	166.53	35.53
	Max	518.53	185.91	44.41
Nov-23	Average	494.89	189.66	37.37
	Max	518.62	217.89	45.45
Dec-23	Average	505.94	181.52	39.01
	Max	527.63	227.75	46.13
Jan-24	Average	492.91	218.34	37.42
	Max	518.44	236.50	45.68
Feb-24	Average	450.53	207.09	35.25
	Max	513.29	252.51	46.16
Mar-24	Average	454.86	160.15	35.54
	Max	510.16	184.35	43.12

ANNEXURE-_II

Unit # 2 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Apr-23	Average			
	Max		SHUT DOWN	
May-23	Average			
	Max		SHUT DOWN	
Jun-23	Average	434.32	124.17	36.24
	Max	466.58	134.85	41.10
Jul-23	Average	449.27	143.78	38.33
	Max	461.57	173.46	44.33
Aug-23	Average	430.20	118.10	36.31
	Max	479.91	152.59	44.65
Sep-23	Average	414.65	111.73	26.44
	Max	448.97	130.68	40.43
Oct-23	Average	428.26	165.44	29.24
	Max	460.41	180.55	38.49
Nov-23	Average	403.13	172.19	31.44
	Max	451.55	188.34	44.05
Dec-23	Average	435.70	157.51	32.88
	Max	448.79	189.91	46.33
Jan-24	Average	428.48	168.64	38.60
	Max	497.79	188.78	45.72
Feb-24	Average	407.89	145.08	38.55
	Max	512.22	234.00	43.58
Mar-24	Average	400.16	142.93	37.76
	Max	493.90	171.62	44.36

ANNEXURE-_II

Unit # 3 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Apr-23	Average	415.39	135.04	35.07
	Max	526.87	213.92	46.87
May-23	Average	509.39	158.73	35.82
	Max	545.13	192.61	44.46
Jun-23	Average	493.99	126.41	37.44
	Max	536.68	162.76	44.90
Jul-23	Average	494.76	165.14	38.91
	Max	525.34	232.13	48.66
Aug-23	Average	492.87	182.91	35.81
	Max	543.69	220.24	45.27
Sep-23	Average	492.69	201.84	32.80
	Max	535.62	250.62	42.47
Oct-23	Average	480.47	187.48	36.52
	Max	518.04	213.56	40.75
Nov-23	Average	482.60	188.45	39.13
	Max	519.68	210.25	41.72
Dec-23	Average	444.51	143.02	38.22
	Max	514.23	170.29	42.35
Jan-24	Average	455.55	169.14	39.57
	Max	520.18	187.70	42.08
Feb-24	Average	457.35	161.11	40.42
	Max	508.58	187.61	44.71
Mar-24	Average	441.11	153.18	41.33
	Max	503.32	174.39	43.54

ANNEXURE-_II

Unit # 4 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Apr-23	Average	373.97	138.28	44.03
	Max	433.56	192.69	47.12
May-23	Average	453.26	166.33	38.96
	Max	534.68	224.28	45.78
Jun-23	Average	451.77	162.69	40.91
	Max	519.83	180.81	46.26
Jul-23	Average	242.11	167.24	37.23
	Max	275.64	275.91	45.39
Aug-23	Average	223.68	225.24	37.47
	Max	244.36	257.95	49.31
Sep-23	Average	205.08	170.73	34.19
	Max	256.14	273.52	40.78
Oct-23	Average	390.22	240.22	31.54
	Max	446.87	248.71	37.31
Nov-23	Average	253.59	156.71	34.56
	Max	373.68	195.16	40.69
Dec-23	Average	432.65	135.40	34.90
	Max	517.87	160.05	39.56
Jan-24	Average	451.18	195.37	37.62
	Max	525.33	244.61	41.84
Feb-24	Average	490.24	209.07	39.61
	Max	523.55	275.34	45.68
Mar-24	Average	411.43	183.77	39.20
	Max	513.41	247.68	41.47

ANNEXURE-_II

Unit # 5 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Apr-23	Average	463.82	129.71	43.33
	Max	513.69	164.23	47.37
May-23	Average	483.84	147.77	40.52
	Max	519.87	199.29	45.45
Jun-23	Average	452.68	154.66	36.65
	Max	526.57	516.14	46.26
Jul-23	Average	475.83	162.82	36.13
	Max	510.98	223.39	43.18
Aug-23	Average	486.88	143.66	39.96
	Max	519.92	197.82	46.13
Sep-23	Average	466.37	173.32	37.21
	Max	511.08	209.29	45.96
Oct-23	Average	452.78	164.11	35.07
	Max	513.48	196.98	41.19
Nov-23	Average	420.76	150.10	36.97
	Max	501.12	177.82	42.82
Dec-23	Average	410.04	153.26	34.44
	Max	511.05	192.68	46.38
Jan-24	Average	455.63	175.07	39.45
	Max	520.18	196.29	42.08
Feb-24	Average	464.56	158.96	35.49
	Max	510.94	219.88	44.71
Mar-24	Average	426.31	176.99	35.54
	Max	501.73	226.98	39.87

ANNEXURE-_II

Unit # 6 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Apr-23	Average	495.57	183.34	40.69
	Max	529.05	228.18	46.16
May-23	Average	506.58	160.54	39.97
	Max	535.79	213.85	44.98
Jun-23	Average	511.32	142.06	41.42
	Max	534.52	184.38	46.53
Jul-23	Average	506.56	177.12	36.82
	Max	528.16	229.30	45.11
Aug-23	Average	500.82	211.09	43.18
	Max	532.82	237.10	48.27
Sep-23	Average	511.77	226.27	36.72
	Max	544.66	278.13	44.05
Oct-23	Average	473.31	203.49	40.64
	Max	558.41	285.04	46.35
Nov-23	Average	412.61	226.56	34.18
	Max	531.72	271.91	45.43
Dec-23	Average	398.16	131.69	37.51
	Max	511.31	166.54	43.84
Jan-24	Average	471.26	179.20	41.57
	Max	533.98	217.49	45.97
Feb-24	Average	500.04	213.47	38.55
	Max	531.73	264.80	45.60
Mar-24	Average	502.70	187.96	39.54
	Max	526.99	266.45	45.54

ANNEXURE-_II

Unit # 7 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Apr-23	Average	419.40	157.60	37.33
	Max	455.67	171.83	46.07
May-23	Average	454.34	147.72	41.60
	Max	488.92	172.00	45.80
Jun-23	Average	388.46	147.33	42.07
	Max	484.88	171.04	45.93
Jul-23	Average	465.94	228.66	40.91
	Max	488.55	285.18	46.37
Aug-23	Average	409.25	211.24	40.64
	Max	498.10	285.26	46.37
Sep-23	Average	467.93	194.63	30.68
	Max	497.89	253.01	35.33
Oct-23	Average	480.80	237.01	30.51
	Max	511.16	285.08	35.35
Nov-23	Average	477.08	209.56	36.44
	Max	499.85	252.06	42.66
Dec-23	Average	458.02	178.90	29.88
	Max	488.73	265.53	46.31
Jan-24	Average	411.22	203.86	34.75
	Max	484.88	254.66	42.09
Feb-24	Average	450.37	200.44	35.57
	Max	484.49	242.44	40.77
Mar-24	Average	420.45	172.18	36.35
	Max	495.61	239.88	39.91

ANNEXURE-_II

Unit # 8 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Apr-23	Average	472.26	119.67	45.91
	Max	520.33	152.73	51.54
May-23	Average	484.98	142.73	44.68
	Max	522.49	184.56	51.02
Jun-23	Average	498.34	186.80	43.46
	Max	523.73	272.57	52.53
Jul-23	Average	514.00	138.89	48.80
	Max	531.63	174.32	50.70
Aug-23	Average	SHUTDOWN		
	Max			
Sep-23	Average	529.80	208.10	43.48
	Max	541.95	273.06	45.85
Oct-23	Average	502.26	222.93	36.63
	Max	533.15	296.61	45.05
Nov-23	Average	476.98	160.17	41.28
	Max	540.25	239.38	45.03
Dec-23	Average	489.48	143.33	39.98
	Max	551.72	172.53	45.44
Jan-24	Average	500.68	206.27	35.85
	Max	540.53	252.44	44.17
Feb-24	Average	506.66	222.73	42.37
	Max	522.12	246.86	43.74
Mar-24	Average	464.36	149.82	39.32
	Max	525.70	179.67	44.95

ANNEXURE- III

Water Utilization Data- April 2023 – MAR 2024

Month	Inlet Water-Total Consumed (For Industrial Cooling + DM water + Domestic)	Water Consumed for Industrial Cooling	For DM water Process	Domestic Water Consumption
	(KL)	(KL)	(KL)	(KL)
Apr-23	1457481	1412109	42113	3259
May-23	1425241	1362819	59220	3202
Jun-23	1489907	1429370	57242	3295
Jul-23	1472117	1417586	51410	3121
Aug-23	1432400	1382814	46478	3108
Sep-23	1470583	1408409	59006	3168
Oct-23	1487314	1412442	71744	3128
Nov-23	1443487	1385441	54921	3125
Dec-23	1384832	1341254	40472	3106
Jan-24	1416574	1373406	40057	3111
Feb-24	1369929	1321993	44871	3065
Mar-24	1476106	1434166	38742	3198
Total	17325971	16681809	606276	37886

ANNEXURE- IV

Effluent Water Quality APR, 2023 – SEPT, 2024

SN	Parameters	UoM	CPCB Limits	Results					
				April	May	June	July	Aug	Sept
1.	pH		**6.5-8.5**	7.42	7.10	7.37	7.34	7.68	7.43
2.	Biochemical Oxygen Demand (BOD) @ 27Deg C for 3 days	mg/L	< **30.0**	15.50	12.40	11.68	17.00	15.93	14.00
3.	Chemical Oxygen Demand (COD)	mg/L	< **250**	83.50	74.00	74.25	87.75	85.00	82.75
4.	Total Kjeldhal Nitrogen as NH3	mg/L	< **100**	6.20	6.93	6.53	4.63	5.93	7.70
5.	Free Available Chlorine	mg/L	< **0.5**	BDL<0.18	BDL<0.18	BDL<0.18	BDL<0.18	BDL<0.18	BDL<0.18
6.	Oil & Grease	mg/L	< **20**	BDL	BDL	0.80	BDL	1.10	1.00
7.	Copper as Cu	mg/L	< **1**	BDL	BDL	BDL	BDL	BDL	BDL
8.	Zinc as Zn	mg/L	< **1**	BDL	0.11	BDL	0.13	0.11	0.14
9.	Iron as Fe	mg/L	< **1**	BDL	0.12	0.13	0.13	0.11	0.13
10.	Total SuspendedSolid	mg/L	< **100**	26.25	24.25	23.25	23.25	30.00	27.50
11.	Ammonical Nitrogen as N	mg/L	< **50**	3.10	4.50	2.93	3.10	3.45	5.60
12.	Nitrate Nitrogen	mg/L	< **10**	1.20	0.85	1.00	0.60	0.81	1.02
13.	Total Chromium as Cr	mg/L	< **1**	BDL<0.01	BDL<0.01	BDL<0.01	BDL<0.01	BDL<0.01	BDL<0.01

ANNEXURE- IV

Effluent Water Quality OCT, 2023 – MARCH, 2024

SN	Parameters	UoM	CPCB Limits	Results					
				Oct	Nov	Dec	Jan	Feb	Mar
1.	pH		**6.5-8.5**	7.68	7.46	7.49	7.64	7.65	7.58
2.	Biochemical Oxygen Demand (BOD) @ 27Deg C for 3 days	mg/L	< **30.0**	19.25	14.50	18.25	20.75	16.00	20.25
3.	Chemical Oxygen Demand (COD)	mg/L	< **250**	94.50	81.50	88.00	103.75	89.25	101.5
4.	Total Kjeldhal Nitrogen as NH3	mg/L	< **100**	7.48	6.45	8.83	7.85	3.90	9.95
5.	Free Available Chlorine	mg/L	< **0.5**	BDL<0.18	BDL<0.18	BDL<0.18	BDL<0.18	BDL<0.18	BDL<0.18
6.	Oil & Grease	mg/L	< **20**	BDL	1.00	1.20	1.05	1.60	1.83
7.	Copper as Cu	mg/L	< **1**	BDL	BDL	BDL	BDL	BDL	BDL
8.	Zinc as Zn	mg/L	< **1**	0.121	0.134	0.124	0.127	0.135	0.12
9.	Iron as Fe	mg/L	< **1**	0.124	0.144	0.120	0.130	0.122	0.135
10.	Total SuspendedSolid	mg/L	< **100**	29.0	28.50	28.50	32.25	24.25	37.00
11.	Ammonical Nitrogen as N	mg/L	< **50**	3.25	3.00	4.23	4.00	3.90	4.13
12.	Nitrate Nitrogen	mg/L	< **10**	1.25	0.965	1.30	1.37	1.16	1.65
13.	Total Chromium as Cr	mg/L	< **1**	BDL<0.01	BDL<0.01	BDL<0.01	BDL<0.01	BDL<0.01	BDL<0.01

ANNEXURE-V

Ministry of Environment, Forest and Climate Change
Monthly Abstract of Ash Generation and Utilization

(For the Period from April, 2023 to March, 2024)

Name of Thermal Power Plant: JSW Energy (Barmer) Limited – Jalipa-Kapurdi Thermal Plant Lignite Coal Base Thermal Plant

Sl. No.	ASH GENERATION AND UTILIZATION							Mode of Ash Utilization and Utilization in Each Mode (IN LAKH TON)					
	Month	Coal consumed (Lakh Ton)	Lime Coal Consumed Lakh Ton)	Ash content of coal (%)	Total Ash content Coal + lime (%)	Ash Generation (Lakh Ton)	Ash Utilization (Lakh Ton)	% Age Utilization	In making of Fly Ash based/ Bricks/ Blocks/ Tiles etc. (Lakh Ton)	In manufacture of Portland Pozzolana Cement (Lakh Ton)	In Mine filling (Lakh Ton)	In Agriculture/ Waste land Development (Lakh Ton)	Others
(1)	(2)	(3)		(4)		(5)	(6)	(7)	(8)	(9)	(15)	(16)	(17)
1	APRIL	4.33175	0.07489	14.44	15.96	0.69154	0.74355	107.52	0.21116	0.53239	0.0000	0.0000	0.0000
2	MAY	4.14694	0.05064	14.56	15.64	0.64852	0.72461	111.73	0.23373	0.49088	0.0000	0.0000	0.0000
3	JUNE	4.58012	0.04789	13.32	14.24	0.65226	0.69104	105.94	0.19980	0.49124	0.0000	0.0000	0.0000
4	JULY	4.84645	0.04498	13.20	14.02	0.67944	0.68776	101.22	0.19955	0.48821	0.0000	0.0000	0.0000
5	AUGUST	4.92217	0.05286	13.78	14.73	0.72496	0.79718	109.96	0.23892	0.55827	0.0000	0.0000	0.0000
6	SEPTEMBER	5.43902	0.07895	14.51	15.79	0.85868	0.68857	80.19	0.20372	0.48484	0.0000	0.0000	0.0000
7	OCTOBER	4.65459	0.04523	12.25	13.11	0.61016	0.68365	112.04	0.20340	0.48024	0.0000	0.0000	0.0000
8	NOVEMBER	4.44439	0.04286	11.33	12.18	0.54134	0.50862	93.96	0.16204	0.34658	0.0000	0.0000	0.0000
9	DECEMBER	4.96422	0.04620	11.89	12.71	0.63080	0.70702	112.08	0.20867	0.49835	0.0000	0.0000	0.0000
10	JANUARY	5.38275	0.08123	12.59	13.92	0.74903	0.81571	108.90	0.26840	0.54731	0.0000	0.0000	0.0000
11	FEBRUARY	5.35899	0.08113	15.19	16.52	0.88528	0.85755	96.87	0.28363	0.57391	0.0000	0.0000	0.0000
12	MARCH	5.65396	0.06081	16.78	17.72	1.00206	0.81482	81.31	0.26337	0.55145	0.0000	0.0000	0.0000
TOTAL		**58.72535**	**0.70767**	**13.7101**	**14.7706**	**8.67407**	**8.72005**	**100.53**	**2.67639**	**6.04366**	**0.0000**	**0.000**	**0.000**

ANNEXURE-VI

FORM 4

[See rule (1)]

Format for the submission of returns, regarding disposal of hazardous waste.

(To be submitted to the State Pollution Control Board)

1. Name and address of the occupier or operator of a facility: **JSW Energy (Barmer) Limited, Dist. – Barmer-344 001**

2. Details of Authorization No., Person Production for hazardous waste generation:

Sr. No.	Authorization No. and Date of issue	Name of the authorization person and full address with telephone, fax number and e-mail:	Production during the year (production wise), Wherever application
1.	**RPCB/HWM/2020-2021/CPM/HSW/32. 11/01/2021**	**Mr. Dipak Patil JSW ENERGY (BARMER) LIMITED, Village & PO. BHADRESH Dist.: BARMER, Rajasthan – 344001 Telephone: 91 2982 229 100 Fax: 2982 229 222**	**4250 Kg** Used Lubrication Oil

2. Details filled by hazardous waste generations: **2023 - 24**

Sr. No.	Total quantity of waste generated category wise	Quantity dispatched	Quantity utilised in-house, if any- site of disposal (attach a sketch showing the location(s) of disposal)			Quantity in storage at the end of the year
			To disposal facility	To recycle or co-processors or pre-processor	Other	
1	**4250 Kg** Used Spent Oil, **(Sch. (I) Code: 5.1**	**4250 Kg**	Not application	Nil (Not stored)	Nil	NA

VIJAY CHINTALA
Head of Plant
JSW Energy (Barmer) Limited
Bhadresh – Barmer 344 011

Annexure I

Material Safety Data Sheet
Coal Fly Ash

SECTION I – GENERAL INFORMATION

Subject: Coal Fly Ash

Manufacturer:

JSW Energy (Barmer) Limited

Village & Po. Bhadresh

Pin 344 011, Rajasthan

Telephone Number for Information
91-2982-229 100

SECTION II – HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Mineral Analysis of Ash	**CAS number**	**Wt % Ignited Basis**
Silica Amorphous (SiO2)		40 – 70 %
Alumina (Al2O3)	1344 – 28 – 1	20 – 35 %
Ferric Oxide (Fe2O3)	1309 – 37 – 1	5 – 15 %
Calcium Oxide (CaO)	1305 – 78 – 8	1 – 5 %
Silica Crystalline Quartz	14808 – 60 – 1	2 – 8 %
Silica, Crystalline Cristobilite	14464 – 46 – 1	1 – 3 %
Potassium Oxide (K2O)		1.6 – 2 %
Titanium Oxide (TiO2)	13463 – 67 – 7	1 – 2 %

Note: Concentrations are approximate and may vary with coal source and boiler operating conditions.

SECTION III – PHYSICAL AND CHEMICAL CHARACTERISTICS

Appearance and Odor: Fine grained, gray powder. No Odor.

Boiling Point	N / A	**Evaporation rate**	N / A
Vapor Pressure	N / A	**Melting Point**	1200 deg C
Vapor Density	N / A	**Solubility in water**	Insoluble
Specific Gravity	1.2 to 2.0		

(ASTM D 854) Note: N/A means not applicable

Annexure I

SECTION IV – FIRE AND EXPLOSION HAZARD DATA

Flammability Limits: N/A

Fire and Explosion Hazard: None

Fire Fighting Procedures: Coal Fly ash is the final product of combustion: therefore, unusual hazards are not expected in a fire.

Flash point: N / A

SECTION V – REACTIVITY DATA

Stability **:** Stable, will not polymerize. Stable under normal conditions of storage and handling.

Conditions to avoid: None

Incompatibility: None

Hazardous Decomposition or by product: None reported

SECTION VI – HEALTH HAZARD INFORMATION

Exposure Route:

- Inhalation
- Skin Contact
- Eye Contact

Ingestion: No information on the short term effects from ingestion in humans available. No observed effects in mice that ingest up to 1 % Coal Fly ash in drinking water (Roy et. Al 1981).

Mutations: No information on Mutagenicity in humans was found.

Birth defects and Effects on Reproduction: No information on reproduction effects humans was found.

Other health effects: Inhaled Crystalline Silica may cause pulmonary damage, resulting in Silicosis. Silicosis is defined as degenerative fibrotic lung disease. It has been determined that the pulmonary defence system of mice was significantly affected by Coal Fly ash (Aranyl and Bradof, 1981)

Note: The International Agency for research on Cancer (IARC) has classified Crystalline silica as a probable human carcinogen.

Medical conditions: No information was reported on medical conditions that may be aggravated by exposure to Coal Fly Ash. However, emphysema and bronchitis frequently occur in cases of Silicosis (Merchant Et Al 1981).

Annexure I

SECTION VII – EMERGENCY AND FIRST AID PROCEDURES

Inhalation: Move person to fresh air. Clear nasal passage and discourage affected individual from sniffing. If person is not breathing, contact emergency medical services and initiate basic life support.

Skin: Brush away ash particles. To avoid possible irritation, wash contaminated skin immediately with soap and water. Remove any contaminated clothing and rewash skin if necessary. If skin irritation results, obtain medical attention.

Eyes: Immediately flush the eyes for at least 15 minutes at an eyewash station or use an appropriate flush solution or water while holding the eyelids open. Do not rub. Seek medical attention as soon as possible.

SECTION VIII PRECAUTIONS FOR SAFE HANDLING AND USE

Personnel protection: Employees handling fly ash should wear gloves, goggles, NIOSH respiratory protection and disposable coverlets.

Storage and handling: When storing coal fly ash in ash ponds, treat surface to avoid wind erosion of ash particles. When storing coal fly ash in landfills, the ash should be wetted and covered to avoid wind erosion of ash particles. Open trucks utilised in ash disposal should be properly covered and should be wetted.

Special precautions and Control Measures: Employees handling fly ash should observe proper personal hygiene, wash hands, remove coverlets before eating, smoking, applying cosmetics or using toilet facilities. Local exhaust system should be used whenever possible. Other practices such as wetting should be utilized to control dust. Compressed air should not be used.

SECTION IX – SPILL OR LEAK PROCEDURES

Spill / releases: Fly ash should be placed in suitable containers and covered. Fly ash should be wetted where practical to control dust.

Fly ash is not considered a hazardous waste under EPA's Resource Conservation and Recovery Act (RCRA). Coal Fly Ash may be disposed of by adding to cement mixtures, asphalt additives and as agricultural soil modifiers (Roy Et Al 1981)