



Energy (Barmer) Limited

(Formerly: Raj WestPower Limited)

Vill. & Post : Bhadresh, Post Box No.30,

Distt : Barmer – 344001 (Rajasthan)

CIN : U31102MH1996PLC185098

Phone : +91 2982 229100

Fax : +91 2982 229222

Website : www.jsw.in

Ref: JSWE(B)L/ENV/2020-21/012

Date: 19.06.2020

To,

Member Secretary

Rajasthan State Pollution Control Board

4-Institutional Area, Jhalana Doongari,

Jaipur – 302004

Sub: Environmental Statement 2019 – 2020.

UNIT ID – 5276

Dear Sir,

We herewith enclose duly filled form – V of Environmental statement of JSWE(B)L for the financial year 2019 2020.

Please acknowledge the same.

Thanking you,
Yours faithfully

For JSW Energy (BARMER) Ltd

Vinod Kumar Jindal

Asst. General Manager – Operation, Environment & Chemistry

Enclosure

Form – V

Annexure _ I Characterization of Solid Waste – **Fly ash & Bed Ash**

Annexure _ II CEMS Data for All Eight Units

Annexure _ III Water Cess Data

Annexure _ IV Effluent Water Quality

Annexure _ V Ash Management Data

Annexure _ VI Form – 4 of Haz Waste Management

CC. Regional Officer, RSPCB - Balotara



Part of O.P.Jindal Group

Regd. Office : JSW Energy (BARMER) Limited, JSW Center, BKC Complex, Bandra (E), Mumbai – 400051

Jaipur Office: Office No. 2 & 3, 7th Floor, Man Upasana Plaza, C-44, Sardar Patel Marg, C-Scheme, Jaipur – 302 001 Ph : 0141 2369772 Fax 0141 2369774

FORM - V
(See Rule 14)

From:

Vinod Kumar Jindal
Asst. Gen. Manager (Operation, Env & Chem),
JSW Energy (Barmer) Limited
Formally Raj WestPower 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 2019-2020

PART – A

- (i) **Name and address of the owner / occupier of the industry operation or process** : **Aditya Agarwal**
Director
JSW Energy (Barmer) Limited
Village- Bhadresh,
Tehsil- Barmer.
Dist. – Barmer-344 001
- (ii) **Industry category – Primary – (STC Code)** : **8 x 135 MW (1080 MW) Lignite based**
Secondary – (SIC Code) **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** : **03.05.2019**

PART – B

Water and Raw Material Consumption

(1) Water consumption M³ / day

Water Consumption (m ³ /day)	During the Previous financial year (2018-19)	During the current financial year (2019-20)
Process (for DM Water)	1032	958
Cooling (From CW)	46381	41039
Domestic	98.7	96.5

Name of Products	Raw water consumption	
	During the Previous financial year (2018-19)	During the current financial year (2019-20)
Power - KL/MW	2.59	2.607

(ii) Raw material consumption

Name of raw material	Name of products	Consumption of raw material per unit of output	
		During the Previous financial year (2018-19)	During the current financial year (2019-20)
		(1)	(2)
Coal Cons. MT/MW	Power	0.877	0.904
Oil Cons. KL/MW		0.00012	0.00010

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	36.0 mg/lit	Within limit
		Oil & Grease	2.53 mg/lit	
		Total Copper	0.0167 mg/lit	
		Total Iron	0.412 mg/lit.	
		Free available Chlorine	<0.2 mg/lit	
		Zinc	0.362 mg/lit	
		Hexavalent Chromium	ND	
		Total Chromium	ND	

<p>(b) Air SPM SO2 NOx</p>		<p>SPM : ⇒ Unit-1 55.3 mg/Nm³ ⇒ Unit-2 54.8 mg/Nm³ ⇒ Unit-3 54.4 mg/Nm³ ⇒ Unit-4 56.2 mg/Nm³ ⇒ Unit-5 51.8 mg/Nm³ ⇒ Unit-6 53.8 mg/Nm³ ⇒ Unit-7 55.1 mg/Nm³ ⇒ Unit-8 54.8 mg/Nm³ SO2 : at 6% O2 Ref. ⇒ Unit-1 481.5 mg/Nm³ ⇒ Unit-2 469.2 mg/Nm³ ⇒ Unit-3 494.0 mg/Nm³ ⇒ Unit-4 476.6 mg/Nm³ ⇒ Unit-5 472.4 mg/Nm³ ⇒ Unit-6 447.6 mg/Nm³ ⇒ Unit-7 469.6 mg/Nm³ ⇒ Unit-8 473.7 mg/Nm³ NOx : at 6% O2 Ref. ⇒ Unit-1 178.6 mg/Nm³ ⇒ Unit-2 168.3 mg/Nm³ ⇒ Unit-3 169.9 mg/Nm³ ⇒ Unit-4 180.8 mg/Nm³ ⇒ Unit-5 170.2 mg/Nm³ ⇒ Unit-6 169.7 mg/Nm³ ⇒ Unit-7 168.6 mg/Nm³ ⇒ Unit-8 169.9 mg/Nm³</p>	<p style="text-align: center;">Within limit</p>
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PART – D

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

Hazardous Waste		Total Quantity (Kg.)	
		During the Previous financial year (2018-19)	During the current financial year (2019-20)
(a)	From process		
	(i) Waste oil	19392 Ltr	12726 Ltr
	(ii) Used Batteries (lead acid)		
	(iii) Waste Resin		
	(iv) Discarded drum		
(b)	From pollution control facilities	---N.A---	---N.A---

PART – E
Solid Waste

		Total Quantity (MT.)	
		During the Previous financial year (2018-19)	During the current financial year (2019-20)
(a)	From process	877324	915839
(b)	From pollution control facilities		
(c)	(1) Quantity recycled or re-utilized within the unit.	Nil	Nil
	(2) Solid (Free sold to ash based manufacturer)	971559	915940
	(3) Disposed (In Ash Pond)	94235* taken from ash pond	101 *Taken from ash pond

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 free of cost to surrounding agencies for manufacturing of ash based products.**
 - (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**
 - (a) Reduce the cost of generation.**
 - (b) Reduce consumption of water.**
 - (c) Appropriate utilization**
2. **CFBC technology is adopted for reduction and controlling of SOx emission.**
3. **High efficiency electro static precipitators (ESP) are installed with 99.9 % efficiency.**

4. A 122-meter-high Chimney is erected for better dispersion of emission.
5. 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 outside the surrounding plant 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.

PART – H

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

- 1) A green belt had been developed all around the plant boundary and ash pond covering an area of 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.



(VINOD KUMAR JINDAL)
AGM- Operation, ENV. & CHEM.

Unit # 1 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Apr-19	Average	257	82	22
	Max	443	166	53
May-19	Average	316	123	43
	Max	463	198	74
Jun-19	Average	235	91	42
	Max	413	155	77
Jul-19	Average	223	136	40
	Max	429	297	70
Aug-19	Average	120	40	26
	Max	370	79	57
Sep-19	Average	148	23	12
	Max	411	128	64
OCT- 19	Average	172	112	65
	Max	320	164	70
Nov-19	Average	201	53	65
	Max	289	107	69
DEC - 19	Average	217	34	62
	Max	340	103	69
Jan-20	Average	252	54	61
	Max	435	90	66
Feb-20	Average	247	49	48
	Max	350	86	65
Mar-20	Average	57	195	61
	Max	156	291	76

Unit # 2 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Apr-19	Average	195	56	23
	Max	430	118	50
May-19	Average	277	74	27
	Max	467	171	45
Jun-19	Average	376	142	52
	Max	497	231	70
Jul-19	Average	267	134	60
	Max	446	239	78
Aug-19	Average	245	150	55
	Max	390	223	95
Sep-19	Average	278	142	49
	Max	421	201	72
OCT- 19	Average	191	98	45
	Max	423	197	58
Nov-19	Average	232	63	47
	Max	381	111	57
DEC - 19	Average	270	92	45
	Max	396	128	55
Jan-20	Average	213	47	38
	Max	347	79	43
Feb-20	Average	256	61	37
	Max	353	129	44
Mar-20	Average	252	65	34
	Max	389	155	40

Unit # 3 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m ³	NOX mg/m ³	SPM mg/m ³
Apr-19	Average	267	127	38
	Max	432	174	60
May-19	Average	401	142	76
	Max	496	216	96
Jun-19	Average	280	102	57
	Max	453	196	77
Jul-19	Average	11	16	4
	Max	190	82	70
Aug-19	Average	194	89	56
	Max	266	156	71
Sep-19	Average	244	98	69
	Max	340	177	75
OCT- 19	Average	255	105	62
	Max	391	164	71
Nov-19	Average	244	53	67
	Max	364	107	69
DEC - 19	Average	327	83	63
	Max	387	128	74
Jan-20	Average	310	54	57
	Max	407	120	63
Feb-20	Average	340	48	57
	Max	409	67	71
Mar-20	Average	350	112	64
	Max	402	127	68

Unit # 4 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Apr-19	Average	342	73	54
	Max	458	161	67
May-19	Average	329	87	42
	Max	424	121	59
Jun-19	Average	302	65	26
	Max	470	113	75
Jul-19	Average	232	92	39
	Max	433	272	75
Aug-19	Average	217	149	49
	Max	353	210	84
Sep-19	Average	320	133	64
	Max	396	170	80
OCT- 19	Average	141	40	32
	Max	342	134	63
Nov-19	Average	214	50	51
	Max	332	95	77
DEC - 19	Average	241	47	65
	Max	428	145	86
Jan-20	Average	252	26	53
	Max	405	52	64
Feb-20	Average	326	78	49
	Max	416	134	59
Mar-20	Average	280	74	42
	Max	419	143	45

Unit # 5 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Apr-19	Average	383	53	29
	Max	496	118	43
May-19	Average	350	74	38
	Max	428	211	48
Jun-19	Average	274	88	52
	Max	445	186	63
Jul-19	Average	155	52	51
	Max	397	171	77
Aug-19	Average	222	103	41
	Max	387	189	58
Sep-19	Average	289	146	44
	Max	416	238	51
OCT- 19	Average	327	151	44
	Max	389	169	51
Nov-19	Average	303	87	54
	Max	391	104	74
DEC - 19	Average	237	68	51
	Max	374	100	76
Jan-20	Average	305	59	61
	Max	397	72	72
Feb-20	Average	262	44	59
	Max	389	90	73
Mar-20	Average	S/D	S/D	S/D
	Max			

Unit # 6 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Apr-19	Average	365	63	51
	Max	440	139	77
May-19	Average	146	61	23
	Max	429	202	50
Jun-19	Average	199	54	30
	Max	420	115	48
Jul-19	Average	220	97	24
	Max	424	219	41
Aug-19	Average	246	95	31
	Max	407	251	39
Sep-19	Average	257	181	34
	Max	411	227	37
OCT- 19	Average	319	158	35
	Max	422	248	41
Nov-19	Average	79	38	18
	Max	320	124	37
DEC - 19	Average	305	112	47
	Max	435	150	55
Jan-20	Average	267	40	47
	Max	380	94	51
Feb-20	Average	259	62	44
	Max	424	130	54
Mar-20	Average	239	203	42
	Max	398	252	50

Unit # 7 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Apr-19	Average	367	108	53
	Max	471	218	68
May-19	Average	326	96	53
	Max	427	212	77
Jun-19	Average	262	108	39
	Max	470	211	50
Jul-19	Average	228	71	50
	Max	429	250	57
Aug-19	Average	273	50	53
	Max	415	105	76
Sep-19	Average	245	84	53
	Max	369	129	77
OCT- 19	Average	226	70	43
	Max	361	121	45
Nov-19	Average	224	55	41
	Max	339	85	45
DEC - 19	Average	345	113	45
	Max	442	158	50
Jan-20	Average	271	59	43
	Max	406	103	52
Feb-20	Average	304	111	44
	Max	397	143	49
Mar-20	Average	281	90	38
	Max	414	187	48

Unit # 8 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Apr-19	Average	356	97	42
	Max	560	158	71
May-19	Average	292	133	58
	Max	416	170	73
Jun-19	Average	231	112	51
	Max	446	201	73
Jul-19	Average	203	123	57
	Max	431	195	79
Aug-19	Average	220	133	44
	Max	432	195	74
Sep-19	Average	225	83	48
	Max	404	165	80
OCT- 19	Average	188	51	50
	Max	354	172	73
Nov-19	Average	245	71	54
	Max	431	133	80
DEC - 19	Average	280	71	53
	Max	412	99	79
Jan-20	Average	223	66	50
	Max	402	98	85
Feb-20	Average	197	55	47
	Max	391	87	64
Mar-20	Average	317	119	48
	Max	444	166	51

Water Cess Data- April 2019 – MAR 2020

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-19	1341519	1307686	30837	2996
May-19	1539610	1511586	24957	3067
Jun-19	1460465	1433603	23881	2981
Jul-19	1286809	1258168	25576	3065
Aug-19	1245701	1210686	31923	3092
Sep-19	1298452	1262008	33447	2997
Oct-19	1216416	1179833	33567	3016
Nov-19	1145053	1114269	28583	2201
Dec-19	1190018	1157139	29934	2945
Jan-20	1160983	1129077	28826	3080
Feb-20	1338231	1306691	28671	2869
Mar-20	1183033	1149616	30398	3019
Total	15406290	15020362	350600	35328



ANNEXURE- IV

Effluent Water Quality APR – 2019 to MAR – 2020

SN	Parameters	UoM	CPCB Limits	Results											
				April	May	June	July	Aug	Sep	Oct	Nov	De	Jan	Feb	Mar
1	pH		6.5-8.5	6.95	7.03	7.1	7.25	7.3	7	7.23	7.23	7.18	7.08	7.18	7.00
2	Biochemical Oxygen Demand (BOD) @ 27Deg C for 3 days	mg/L	< 30.0	22.5	23	23.5	23.5	23.75	22.5	22.25	22.5	25	21.75	23.25	22.25
3	Chemical Oxygen Demand (COD)	mg/L	< 250	76	73	74.75	79.75	70.75	74	80.5	77.0	71.0	75.0	78.5	72.5
4	Total Kjeldhal Nitrogen as NH3	mg/L	< 100	8.64	8.6	8.9	8.45	7.8	8.65	8.08	8.76	8.51	8.20	8.45	8.81
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	BDL<0.18	BDL<0.18	BDL<0.18	BDL<0.18	BDL<0.18	BDL<0.18
6	Oil & Grease	mg/L	< 20	2.2	2.47	1.925	2.95	2.83	2.1	2.7	2.7	2.35	2.25	3.45	2.4
7	Copper as Cu	mg/L	< 1	0.022	0.0155	0.014	0.0163	0.0123	0.014	0.0178	0.0153	0.0148	0.0235	0.0168	0.0183
8	Zinc as Zn	mg/L	< 1	0.297	0.37	0.365	0.325	0.435	0.363	0.380	0.368	0.400	0.370	0.310	0.363
9	Iron as Fe	mg/L	< 1	0.347	0.453	0.4325	0.393	0.445	0.418	0.428	0.390	0.460	0.365	0.435	0.375
10	Total Suspended Solid	mg/L	< 100	36	34.75	38.25	32	43	30	36.75	38.50	32.50	37.00	39.50	33.25
11	Ammonical Nitrogen as N	mg/L	< 50	4.89	5.6	5.6	5.47	5.7	5.21	5.17	5.39	5.47	4.91	5.46	5.49
12	Nitrate Nitrogen	mg/L	< 10	2.29	2.03	2.15	1.83	1.73	2	1.96	2.02	1.93	2.15	1.90	2.08
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	BDL<0.01	BDL<0.01	BDL<0.01	BDL<0.01	BDL<0.01	BDL<0.01

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

(For the Period from April, 2019 to March, 2020)

Name of Thermal Power Plant: Raj West Power 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 (%)	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-19	4.3423	0.1108	13.41	0.6800	0.7131	104.87	0.0697	0.6434	0.0000		
2	MAY-19	4.8290	0.1928	13.89	0.8407	0.7112	84.60	0.1243	0.4778	0.1092		
3	JUNE-19	4.7745	0.1904	14.45	0.8573	0.8018	93.52	0.1185	0.5088	0.1744		
4	JULY-19	4.3206	0.2005	14.29	0.7939	0.8541	107.58	0.1215	0.4940	0.2386		
5	AUGUST-19	4.2628	0.2288	14.56	0.8220	0.7760	94.41	0.1337	0.4248	0.2176		
6	SEP-19	4.5289	0.1867	14.45	0.8189	0.7541	92.09	0.1573	0.4198	0.1770		
7	OCT-19	4.0489	0.1658	14.27	0.7237	0.7125	98.46	0.1337	0.4901	0.0887		
8	NOV-19	4.0501	0.1505	14.45	0.7176	0.7678	107.00	0.1387	0.5102	0.1190		
9	DEC-19	4.6463	0.1609	13.74	0.7800	0.8642	110.79	0.1633	0.5521	0.1488		
10	JANUARY-20	4.5046	0.1454	12.82	0.7054	0.7729	109.57	0.1529	0.5290	0.0911		
11	FEBRUARY-20	4.8619	0.1745	12.56	0.7641	0.8104	106.06	0.1714	0.5195	0.1195		
12	MARCH-20	3.9691	0.1719	12.69	0.6549	0.6213	94.87	0.1023	0.3194	0.1996		
	TOTAL	53.1386614	2.0790	13.79	9.1584	9.1594	100.01	1.5872	5.8889	1.6834	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 waste disposal operations: **2019-20**

Sr. No.	Date of issuance of authorization for the disposal of hazardous waste and its reference numbers	Description of Hazardous Waste	Total Volume of the hazardous waste disposed with No. of packages	Mode of transportation to the site of disposal	Site of disposal (attach a sketch showing the location (s) of disposal)	Brief description of the method of disposal	Date of disposal	Remarks (if any)
		Physical form & contents	Chemical form					
1.	31/07/2018 RPCB/HWM/2018-2019/HSW/HSW/157	Liquid	Used Lubricating Oil	NIL (Not stored)	NA	NA		The Hazardous waste will be disposed by selling to RSPCB authorized waste oil recyclers. NA

2. Date of environmental surveillance:

Date of measurement	Analysis of ground water			Analysis of soil samples			Analysis of air samples	Analysis of any other
	Location of Sampling	Depth of sampling	Data	Location of Sampling	Depth of sampling	Data	Location data of sampling	Samples (give details)
Not Applicable								

Veeresh Devaramani
Head of Plant
JSW Energy (Barmer) Limited
Bhadresh – Barmer 344 011

