JSW Energy (Barmer) Limited
Village & Post : Bhadresh, Post Box No. 30,
Distt : Barmer – 344001 (Rajasthan)
CIN : U31102MH1996PLC185098
Phone : +91 2982 229100
Website : www.jsw.in

Ref: JSWE(B)L/ENV/23-24/005 Date: 07.06.2023

To,

Ministry of Environment Forests & Climate Change,
Integrated Regional Office,
A-209&218, Aranya Bhavan, M. G. Road,
Jaipur-304002, Rajasthan.

Sub: Compliance Report-Environmental Clearance for 1080 MW Lignite based Power Plant at Village-Bhadresh, District Barmer.

Dear Sir,

With reference to your letter No. J-13011/58/2006-IA-II (T) dated 20.07.2007 and 19.11.2009, and followed by Letter no. IV/ENV/R/Th-39/679/08/273, we herewith submit half-yearly compliance report, for the period pertaining to **OCTOMBER- 2022 to MARCH- 2023,** for the conditions stipulated in the Environmental clearance issued for this Power Project. Analysis Data has uploaded on JSWEBL website – http://www.jsw.in/energy/about-barmer-plant.

We have taken up the Project activity at proposed site incorporating the conditions stipulated in this environmental clearance.

Thanking you.

For JSW ENERGY (BARMER) Ltd**.**

Vinod Jindal
DGM (Environment & Chemistry)

Enclosure:

1. Compliance Report
2. Water consumption Data **-Annexure I**
3. Effluent Water Data **-Annexure II**
4. Coal Analysis Data **-Annexure III**
5. CEMS & Stack Monitoring DATA **-Annexure IV**
6. Ash Utilization Data **-Annexure V**
7. Noise Monitoring **-Annexure VI**
8. AAQ Monitoring Data -**Annexure VII**
9. Environmental Expenditure **- Annexure VIII**
10. Last Compliance Report **-Annexure IX**

C.C.
The Member Secretary – Central Pollution Control Board, Delhi
The Member Secretary – RSPCB, Jaipur
The Regional Officer – RSPCB, Balotra.

Compliance report for MOEF conditions stipulated in Environmental Clearance (dt. 20-07-2007 as amended on 19-11-2009) for 1080 MW Lignite-based power project of RWPL at Village-Bhadresh, District-Barmer

Reporting Period: OCT, 2022- MAR-2023

S.N.	Condition	Status
i	No land in excess of 468 ha shall be acquired for any activity of the project.	Land acquisition has been carried at the time of setting up the Power Project. No additional land been acquired for this Project.
ii	The water requirement for the project shall not exceed 35.5 cusecs. No ground water shall be abstracted for any activity of the project.	Water in excess of the mandated 35.5 cusecs would not be drawn during the operation of the Project. IGNP supplied water is being used for generation of Electricity as per EC conditions. Water being used Records of Water received from IGNP is enclosed. **ANNEXURE-I**
iii	*Closed Circuit Cooling System with induced draft cooling towers shall be installed.*	Four numbers of closed circuit cooling tower blocks with induced draft cooling towers have been erected and are in operation.
iv	*Treated effluents conforming to the prescribed standards shall be re-circulated and reused within the plant. No effluents shall be discharged outside the plant boundary.*	A common **ETP (Aeration – Clarifier – Filtration – Ultra Filtration – Reverse Osmosis)** to cater to all the 8 power generating units has erected. All the process effluents generated is being treated in this ETP and reused within the plant ensuring zero discharge outside the plant boundary. Effluent Water Quality Data – **Annexure – II**
v	*Lignite with ash content not exceeding 20% and sulphur content not exceeding 2.0% shall be used.*	Lignite with ash content less than 20% and Sulphur content less than 2% being used. Third party analysis reports for the same are enclosed. **ANNEXURE-III**

vi	*Space provision for FGD shall be made, if required at a later stage.*	The Project is based on Circulating Fluidized Base Combustion technology for fuel firing and involves injection of lime, which absorbs Sulphur. As such, there is no requirement for FGD. However space provision has been made for FGD.
vii	*Four stacks of 122 m height each with exit velocity of at least 20 m/s shall be provided with continuous online monitoring system.*	A total of four bi-flue stacks, each flue of 122 m height, shall release the flue gases to the atmosphere. All these stacks being equipped with Continuous Emission Monitoring Systems (CEMS), to ensure the emission of PM, SO2, NOx & CO to be within prescribed levels. **ANNEXURE-IV**
viii	*Low NOx burners shall be installed.*	The boiler is designed on Circulating Fluidized Bed Combustion, system attains to very low NOx generation. **ANNEXURE-IV**
ix	*High efficiency Electrostatic Precipitator (ESPs) having efficiency of 99.9% shall be installed so as to ensure that particulate emissions do not exceed 100 mg/Nm^3.*	High efficiency ESPs are installed to maintain PM emission levels at less than 100 mg/Nm^3. **ANNEXURE-IV**
xi	*Fly ash shall be collected in dry form and its 100% utilization shall be ensured within 3 years from the day of the commissioning of the plant. Ash to be disposed off in the ash pond shall be through HCSD system.*	Fly ash is being collected in dry form from the currently operational EIGHT Units and is being lifted by M/s Shree Cement, M/s. JK Lakshmi, M/s. Ambuja Cement Limited & M/s Binani Cements and many Local Brick and Tiles Block manufacturer. Unutilized ash, if any, would be disposed off to the emergency ash pond through HCSD system. **Ash Utilization data ANNEXURE-V**
xii	*Ash pond shall be lined with 0.5 mm thick HDPE geo-membrane lining.*	The ash pond is lined with 0.5 mm thick HDPE geo-membrane, to avoid any leachate to the ground.

xiii	*Details of compensation to be paid to the land oustees along with number of land oustees shall be worked out and submitted to this Ministry within three months from the date of issue of this letter or before the start of work on the project whichever is earlier.*	Resettlement Action Plan (RAP) was compiled and submitted to the MOEF on 30-07-2007.
xiv	*Necessary prior clearance from NHAI shall be obtained before laying the pipeline.*	All necessary prior clearance from NHAI had obtained before laying the pipeline and a copy Submitted.
xv	*Necessary prior clearance from Indian Air Force shall be obtained for construction of stacks of requisite height before starting the work on the project.*	Before commencing the civil work on the stacks, necessary clearance had obtained from the Indian Air Force.
xvi	*Adequate measures shall be taken up to maintain the sanctity and protection from any adverse impact from the proposed power project to the temple of Sant Ishardas Samadhi.*	The Temple is outside the plant premises. In consultation with the local population, suitable developmental measures such as supply of lighting and electricity have been taken for this temple.
xvii	*Regular monitoring of ground water quality including heavy metals shall be undertaken in the project area to ascertain the change, if any, in the water quality due to leaching of contaminants from the ash disposal area.*	There is hardly any ground water within 20 km of the Project area.
xviii	*Noise levels shall be limited to 75 dBA. For people working in the high noise area, protective devices such as earplugs etc. shall be provided.*	The machinery has been designed to limit the noise levels to 75 dB (A). All personnel working in the Plant have PPEs issued. **ANNEXURE-VI**
xix	*A greenbelt shall be developed all around the plant boundary and ash pond covering an area of 154 ha.*	A total of 154 Ha area brought under green belt developed as designated greenbelt area. Mortality replacement work is continuous process and is being carried.
xx	*Regular monitoring of the air quality shall be carried out in and around the power plant and records shall be maintained. The location of monitoring stations and frequency of monitoring shall be finalized in consultation with SPCB. Six monthly reports shall be submitted to this Ministry.*	Regular monitoring of AAQ is being carried out in and around the power plant at locations and frequency finalized in consultation with the RSPCB and records are maintained. **ANNEXURE-VII**

xxi	*For controlling fugitive dust, regular sprinkling of water in lignite handling area and other vulnerable areas of the plant shall be ensured.*	Regular sprinkling of water is being practiced to minimize the fugitive dust emissions.
xxii	*The project proponent should advertise at least in two local newspapers widely circulated in the region around the project, one of which should be in the vernacular language of the locality concerned, informing that the project has been accorded environmental clearance and copies of clearance letters are available with the State Pollution Control Board/Committee and may also be seen in the Website of the Ministry of Environment and Forests in the http://envfor.nic.in.*	Published in Rajasthan Patrika Jodhpur Edition, Dt 19/08/2007
xxiii	*A separate environment monitoring cell with suitable qualified staff should be set up for implementation of the stipulated environmental safeguards.*	A dedicated environment monitoring cell with qualified staff has been established and is operative.
xxiv	*Half yearly report on the status of implementation of the conditions and environmental safeguards should be submitted to this Ministry, its Regional Office, CPCB and SPCB.*	Being complied with. Copy of Submission enclosed – **Annexure IX**
xxv	*Regional Office of the Ministry of Environment & Forests located at Lucknow will monitor the implementation of the stipulated conditions. Complete set of Environmental Impact Assessment Report and Management Plan along with additional information submitted to this Ministry should be forwarded to the Regional Office for their use during monitoring.*	Submitted.
xxvi	*Separate funds should be allocated for implementation of environmental protection measures along with item-wise break-up. These cost should be included as part of the project cost. The funds earmarked for the environment protection measures should not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.*	The funds earmarked for environmental protection measures will not be diverted for other purposes. **Annexure VIII**
xxvii	*Full cooperation should be extended to the Scientists/Officers from the Ministry and its Regional Office at Lucknow /the CPCB/the SPCB during monitoring of the project.*	Being complied.

ANNEXURE - I

IGNP WATER BILL

OCTOMBER- 2022 to MARCH- 2023

Month	Cuft/Month	Cum/Month	Cuft/day	Cusecs – Day
OCTOBER-22	66031854	1869824	2130060	24.65
NOVEMBER-22	50724582	1436368	1690819	19.57
DECEMBER-22	57677861	1633264	1860576	21.53
JANUARY-23	45385599	1285184	1464052	16.95
FEBRUARY-23	60678179	1718224	2167078	25.08
MARCH-23	65276971	1848448	2105709	24.37

ANNEXURE-I

Government of Rajasthan
Indira Gandhi Nahar Project

No. 389 Date: 01/11/2022

The General Manager
J.S.W Energy (Barmer) Limited
Near Saint paul school
Indira colony Barmer, Rajasthan

Sub: Raw water bill for industrial purpose for the period October /2022

S.No.	Particular	Reading on 30/09/2022	Reading as on 31/10/2022	Difference as per flow meter	Qty. in CFT	Unit	Rate	Ammount
1	Supply of raw water from IGMN to JSW for industrial purpose	150240736	152110560	1869824	66031853.66	/1000 cft	250	16507963.41
						say as		16507963.00

Rs.- One Crore Sixty Five Lakhs Seven Thousand Nine hundred Sixty Three only

Assistant Engineer
Sub dn. III 28th u/c tmc dn.
IGNP Mohangarh

Government of Rajasthan
Indira Gandhi Nahar Project

No. 449 Date: 1/12/2022

The General Manager
J.S.W Energy (Barmer) Limited
Near Saint paul school
Indira colony Barmer, Rajasthan

Sub: Raw water bill for industrial purpose for the period November /2022

S.No.	Particular	Reading on 31/10/2022	Reading as on 30/11/2022	Difference as per flow meter	Qty. in CFT	Unit	Rate	Ammount
1	Supply of raw water from IGMN to JSW for industrial purpose	152110560	153546928	1436368	50724582.41	/1000 cft	250	12681145.60
						say Rs		12681146.00

Rs.- One Crore Twenty Six Lakhs Eighty One Thousand One hundred Fourty Six only

Assistant Engineer
Sub dn. III 28th u/c tmc dn.
IGNP Mohangarh

Government of Rajasthan
Indira Gandhi Nahar Project

No. 389 Date: 01/11/2022

The General Manager
J.S.W Energy (Barmer) Limited
Near Saint paul school
Indira colony Barmer, Rajasthan

Sub: Raw water bill for industrial purpose for the period October /2022

S.No.	Particular	Reading on 30/09/2022	Reading as on 31/10/2022	Difference as per flow meter	Qty. in CFT	Unit	Rate	Ammount
1	Supply of raw water from IGMN to JSW for industrial purpose	150240736	152110560	1869824	66031853.66	/1000 cft	250	16507963.41
						say as		16507963.00

Rs.- One Crore Sixty Five Lakhs Seven Thousand Nine hundred Sixty Three only

Assistant Engineer
Sub dn. III 28th u/c tmc dn.
IGNP Mohangarh

ANNEXURE-I

Government of Rajasthan
Indira Gandhi Nahar Project

No. 584

Date: 01/02/23

The General Manager
J.S.W Energy (Barmer) Limited
Near Saint paul school
Indira colony Barmer, Rajasthan

Sub: Raw water bill for industrial purpose for the period January /2023

S.No.	Particular	Reading on 31/12/2022	Reading as on 31/01/2023	Difference as per flow meter	Qty. in CFT	Unit	Rate	Ammount
1	Supply of raw water from IGMN to JSW for industrial purpose	155180192	156465376	1285184	45385598.76	/1000 cft	275	12481039.66
							say Rs	12481040.00

Rs.- One Crore Twenty Four Lakhs Eighty One Thousand Forty only

Assistant Engineer
Sub dn. III 28th u/c tmc dn.
IGNP Mohangarh

कृते सहायक अभियन्ता
उपखण्ड III 28 वां प्रा०नि०
टी एम सी खण्ड
इ०गा०न०प० मोहनगढ़
डिडियो कोड 24858

Government of Rajasthan
Indira Gandhi Nahar Project

No. 653

Date: 01/03/2023

The General Manager
J.S.W Energy (Barmer) Limited
Near Saint paul school
Indira colony Barmer, Rajasthan

Sub: Raw water bill for industrial purpose for the period February /2023

S.No.	Particular	Reading on 31/01/2023	Reading as on 28/02/2023	Difference as per flow meter	Qty. in CFT	Unit	Rate	Ammount
1	Supply of raw water from IGMN to JSW for industrial purpose	156465376	158183600	1718224	60678179.19	/1000 cft	275	16686499.28
							say Rs	16686499.00

Rs.- One Crore Sixty Six Lakhs Eighty Six Thousand Four Hundred Ninety Nine only

Assistant Engineer
Sub dn. III 28th u/c tmc dn.
IGNP Mohangarh

सहायक अभियन्ता
उपखण्ड III 28 वां खण्ड प्रा.नि.
टी.एम.सी. खण्ड इ.गां.न.प.
मोहनगढ़

Government of Rajasthan
Indira Gandhi Nahar Project

No. 684
04/03/23

Date:

The General Manager
J.S.W Energy (Barmer) Limited
Near Saint paul school
Indira colony Barmer, Rajasthan

Sub: Raw water bill for industrial purpose for the period March/2023

S.No.	Particular	Reading on 28/02/2023	Reading as on 31/03/2023	Difference as per flow meter	Qty. in CFT	Unit	Rate	Ammount
1	Supply of raw water from IGMN to JSW for industrial purpose	158183600	160032048	1848448	65276971.43	/1000 cft	275	17951167.14
							SAY RS	17951167.00

Rs.- One Crore Seventy Nine Lakhs Fifty One Thousand One Hundred Sixty Seven only

Assistant Engineer
Sub dn. III 28th u/c tmc dn.
IGNP Mohangarh

ANNEXURE-II

Effluent Water Quality OCT – 2022 to MAR – 2023

SN	Parameters	UoM	CPCB Limits	Results					
				Oct	Nov	Dec	Jan	Feb	Mar
1.	pH		**6.5-8.5**	7.45	7.34	7.87	7.61	7.27	7.19
2.	Biochemical Oxygen Demand (BOD) @ 27Deg C for 3 days	mg/L	**< 30.0**	17.0	20.25	14.75	17.50	15.25	15.25
3.	Chemical Oxygen Demand (COD)	mg/L	**< 250**	77.5	101.2	83.25	89.25	76.75	76.50
4.	Total Kjeldhal Nitrogen as NH3	mg/L	**< 100**	5.93	7.40	7.20	7.74	6.50	6.45
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**	1.17	2.15	1.51	2.05	2.17	2.20
7.	Copper as Cu	mg/L	**< 1**	0.041	0.031	0.012	0.014	0.012	0.027
8.	Zinc as Zn	mg/L	**< 1**	0.032	0.032	0.025	0.023	0.022	0.037
9.	Iron as Fe	mg/L	**< 1**	0.29	0.20	0.21	0.28	0.22	0.23
10.	Total Suspended Solid	mg/L	**< 100**	23.0	29.0	28.0	24.2	24.0	26.5
11.	Ammonical Nitrogen as N	mg/L	**< 50**	3.25	8.86	4.10	3.90	3.70	3.70
12.	Nitrate Nitrogen	mg/L	**< 10**	2.73	1.34	0.7	0.70	1.06	0.95
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-III

COAL ANALYSIS REPORT

COAL ANALYSIS REPORT Oct, 2022 – MAR, 2023

	AVERAGE		
Month	**Total Moisture**	**Gross Calorific Value**	**Sulfur**
	%	**Kcal/Kg**	**%**
OCTOBER-22	40.69	3157.65	0.41
NOVEMBER-22	39.41	3086.92	0.34
DECEMBER-22	41.30	2991.23	0.40
JANUARY-23	41.16	3032.76	0.45
FEBRUARY-23	41.45	3027.47	0.41
MARCH-23	41.04	3141.85	0.42

ANNEXURE-III

Quality Council of India
2nd Floor, Institution of Engineers Building,
Bahadur Shah Zafar Marg,
New Delhi - 110 002. India

Report ID: QCI/COAL/JSW/SH/MR/72
Source Name: Screenhouse (As Fired)
Consumer Name: JSW Energy, Barmer Limited

Date: 07th November'2022

This is to certify that the weighted average analysis parameters of Lignite Coal (As Received basis) collected from Conveyor belt feeding to Unit# 1, 2, 3, 4, 5,6,7 and 8 is mentioned below:

Month	Quantity (in Metric Tonnes)	Analysis Parameters (As Received Basis) on weighted average		
		Total Moisture %	Sulphur %	GCV "Kcal/Kg"
October'2022	465973.000	40.69	0.41	3157.65

Mr. F.C. Srivastava
Deputy Director
Finance & Accounts Division, QCI

Note:
Sampling and analysis done by Quality Council of India (QCI) with the help of its technical service provider. Weighted Average Report is based on the basis Daily analysis report analyzed by QCI.
GCV analysis has been done in accordance to BIS specification, IS 1350 (Part-II), 1970 Reaffirmed: 2017
Testing and analysis performed at NABL accredited lab.
#Total Moisture determination has been done by QCI with the help of its third-party agency at JSW Energy (Barmer) limited laboratory in accordance to BIS specification, IS 1350 (Part-I), 1984 reaffirmed:2013

ANNEXURE-III

Quality Council of India
2nd Floor, Institution of Engineers Building,
Bahadur Shah Zafar Marg,
New Delhi – 110 002, India

Report ID: QCI/COAL/JSW/SH/MR/75 **Date:** 07th December'2022
Source Name: Screenhouse (As Fired)
Consumer Name: JSW Energy, Barmer Limited

This is to certify that the weighted average analysis parameters of Lignite Coal (As Received basis) collected from Conveyor belt feeding to Unit# 1, 2, 3, 4, 5,6,7 and 8 is mentioned below:

Month	Quantity (in Metric Tonnes)	Analysis Parameters (As Received Basis) on weighted average		
		Total Moisture %	Sulphur %	GCV "Kcal/Kg"
November'2022	516652.000	39.41	0.34	3086.92

Mr. P.C. Srivastava
Deputy Director
Finance & Accounts Division, QCI

Note:
Sampling and analysis done by Quality Council of India (QCI) with the help of its technical service provider. Weighted Average Report is based on the basis Daily analysis report analyzed by QCI.
GCV analysis has been done in accordance to BIS specification, IS 1350 (Part-II), 1970 Reaffirmed: 2017
Testing and analysis performed at NABL accredited lab.
#Total Moisture determination has been done by QCI with the help of its third-party agency at JSW Energy (Barmer) limited laboratory in accordance to BIS specification, IS 1350 (Part-I), 1984 reaffirmed:2013

ANNEXURE-III

Quality Council of India
2nd Floor, Institution of Engineers Building,
Bahadur Shah Zafar Marg,
New Delhi – 110 002, India

Report ID: QCI/COAL/JSW/SH/MR/78 **Date:** 07th January'2023
Source Name: Screenhouse (As Fired)
Consumer Name: JSW Energy, Barmer Limited

This is to certify that the weighted average analysis parameters of Lignite Coal (As Received basis) collected from Conveyor belt feeding to Unit# 1, 2, 3, 4, 5,6,7 and 8 is mentioned below:

Month	Quantity (in Metric Tonnes)	Analysis Parameters (As Received Basis) on weighted average		
		Total Moisture %	Sulphur %	GCV "Kcal/Kg"
December'2022	309150.000	41.30	0.40	2991.23

Mr. F.C. Srivastava
Deputy Director
Finance & Accounts Division, QCI

Note:
Sampling and analysis done by Quality Council of India (QCI) with the help of its technical service provider. Weighted Average Report is based on the basis Daily analysis report analyzed by QCL.
GCV analysis has been done in accordance to BIS specification, IS 1350 (Part-II), 1970 Reaffirmed: 2017
Testing and analysis performed at NABL accredited lab.
#Total Moisture determination has been done by QCI with the help of its third-party agency at JSW Energy (Barmer) limited laboratory in accordance to BIS specification, IS 1350 (Part-I), 1984 reaffirmed:2013

ANNEXURE-III

Quality Council of India
2nd Floor, Institution of Engineers Building,
Bahadur Shah Zafar Marg,
New Delhi – 110 002, India

Report ID: QCI/COAL/JSW/SH/MR/81 **Date:** 09th Feburary'2023
Source Name: Screenhouse (As Fired)
Consumer Name: JSW Energy, Barmer Limited

This is to certify that the weighted average analysis parameters of Lignite Coal (As Received basis) collected from Conveyor belt feeding to Unit# 1, 2, 3, 4, 5,6,7 and 8 is mentioned below:

Month	Quantity (in Metric Tonnes)	Analysis Parameters (As Received Basis) on weighted average		
		Total Moisture %	Sulphur %	GCV "Kcal/Kg"
January'2023	345497.000	41.16	0.45	3032.76

Quality Council of India
Barmer

Mr. F.C. Srivastava
Deputy Director
Finance & Accounts Division, QCI

Note:
Sampling and analysis done by Quality Council of India (QCI) with the help of its technical service provider. Weighted Average Report is based on the basis Daily analysis report analyzed by QCI.
GCV analysis has been done in accordance to BIS specification, IS 1350 (Part-II), 1970 Reaffirmed: 2017
Testing and analysis performed at NABL accredited lab.
#Total Moisture determination has been done by QCI with the help of its third-party agency at JSW Energy (Barmer) limited laboratory in accordance to BIS specification, IS 1350 (Part-I), 1984 reaffirmed:2013

ANNEXURE-III

Quality Council of India
2nd Floor, Institution of Engineers Building,
Bahadur Shah Zafar Marg,
New Delhi – 110 002, India

Report ID: QCI/COAL/JSW/SH/MR/84 **Date:** 06th March'2023
Source Name: Screenhouse (As Fired)
Consumer Name: JSW Energy, Barmer Limited

This is to certify that the weighted average analysis parameters of Lignite Coal (As Received basis) collected from Conveyor belt feeding to Unit# 1, 2, 3, 4, 5,6,7 and 8 is mentioned below:

Month	Quantity (in Metric Tonnes)	Analysis Parameters (As Received Basis) on weighted average		
		Total Moisture %	Sulphur %	GCV "Kcal/Kg"
February'2023	337274.000	41.45	0.41	3027.47

Mr. F.C. Srivastava
Deputy Director
Finance & Accounts Division, QCI

Note:
Sampling and analysis done by Quality Council of India (QCI) with the help of its technical service provider. Weighted Average Report is based on the basis Daily analysis report analyzed by QCI.
GCV analysis has been done in accordance to BIS specification, IS 1350 (Part-II), 1970 Reaffirmed: 2017
Testing and analysis performed at NABL accredited lab.
#Total Moisture determination has been done by QCI with the help of its third-party agency at JSW Energy (Barmer) limited laboratory in accordance to BIS specification, IS 1350 (Part-I), 1984 reaffirmed:2013

ANNEXURE-III

Quality Council of India
2nd Floor, Institution of Engineers Building,
Bahadur Shah Zafar Marg,
New Delhi – 110 002, India

Report ID: QCI/COAL/JSW/SH/MR/87 Date: 06th April'2023
Source Name: Screenhouse (As Fired)
Consumer Name: JSW Energy, Barmer Limited

This is to certify that the weighted average analysis parameters of Lignite Coal (As Received basis) collected from Conveyor belt feeding to Unit# 1, 2, 3, 4, 5,6,7 and 8 is mentioned below:

Month	Quantity (in Metric Tonnes)	Analysis Parameters (As Received Basis) on weighted average		
		Total Moisture %	Sulphur %	GCV "Kcal/Kg"
March'2023	525608.000	41.04	0.42	3141.85

M. K. Srivastava
Deputy Director
Finance & Accounts Division, QCI

Note:
Sampling and analysis done by Quality Council of India (QCI) with the help of its technical service provider. Weighted Average Report is based on the basis Daily analysis report analysed by QCI.
GCV analysis has been done in accordance to BIS specification, IS 1350 (Part-II), 1970 Reaffirmed: 2017
Testing and analysis performed at NABL accredited lab.
#Total Moisture determination has been done by QCI with the help of its third-party agency at JSW Energy (Barmer) limited laboratory in accordance to BIS specification, IS 1350 (Part-I), 1984 reaffirmed:2013

ANNEXURE-IV

STACK EMISSION MONITORING RESULTS OCT – 2022 to MAR – 2023

Month: Oct' 2022

SN	Parameters	UOM	Unit-I	Unit-II	Unit-III	Unit-IV	Unit-V	Unit-VI	Unit-VII	Unit-VIII
1	Average Velocity	m/Sec	22.98	22.91	18.98	SHUT DOWN	23.59	23.44	19.12	18.88
2	Flow	Nm^3/Sec	172.8	171.9	142.1		174.6	177.8	144.4	141.6
3	Stack Exit Temp.	^0C	172	173	174		179	168	170	173
4	Particulate Matter	mg/Nm^3	40.6	38.5	42.8		39.9	38.6	35.9	48.7
5	Sulphur Dioxide	mg/Nm^3	512.8	497.8	530.0		523.2	524.2	513.7	501.7
6	Oxides of Nitrogen	mg/Nm^3	147.2	154.3	163.1		154.3	146.3	168.9	168.5

Month: Nov' 2022

SN	Parameters	UOM	Unit-I	Unit-II	Unit-III	Unit-IV	Unit-V	Unit-VI	Unit-VII	Unit-VIII
1	Average Velocity	m/Sec	20.21	19.34	19.47	18.95	19.06	20.11	19.47	20.08
2	Flow	Nm^3/Sec	156.9	147.1	149.1	149.2	146.9	156.5	149.7	154.1
3	Stack Exit Temp.	^0C	158	160	164	152	161	157	162	163
4	Particulate Matter	mg/Nm^3	40.0	45.5	48.2	44.7	39.7	36.3	42.9	47.2
5	Sulphur Dioxide	mg/Nm^3	518.5	539.5	542.1	512.8	534.5	534.5	559.2	506.2
6	Oxides of Nitrogen	mg/Nm^3	150.1	162.7	145.4	147.2	156.3	148.2	148.4	162.4

Month: Dec' 2022

SN	Parameters	UOM	Unit-I	Unit-II	Unit-III	Unit-IV	Unit-V	Unit-VI	Unit-VII	Unit-VIII
1	Average Velocity	m/Sec	17.81	18.13	18.22	18.95	18.35	18.83	18.30	18.39
2	Flow	Nm^3/Sec	133.6	135.4	137.6	143.1	138.0	141.9	137.6	137.6
3	Stack Exit Temp.	^0C	173	175	170	170	172	171	172	174
4	Particulate Matter	mg/Nm^3	40.2	36.8	49.7	43.3	41.7	46.3	39.6	48.8
5	Sulphur Dioxide	mg/Nm^3	516.5	494.9	507.1	518.4	536.2	545.2	514.7	535.6
6	Oxides of Nitrogen	mg/Nm^3	148.3	146.2	161.6	152.6	154.0	144.2	148.2	155.4

ANNEXURE-IV

Month: Jan' 2023

SN	Parameters	UOM	Unit-I	Unit-II	Unit-III	Unit-IV	Unit-V	Unit-VI	Unit-VII	Unit-VIII
1	Average Velocity	m/Sec	20.39	20.41	19.38	20.22	19.26	19.38	20.26	19.84
2	Flow	Nm^3/Sec	152.9	154.1	154.1	153.7	144.8	149.7	152.7	150.2
3	Stack Exit Temp.	^0C	173	170	156	167	172	160	171	169
4	Particulate Matter	mg/Nm^3	42.6	36.9	44.9	43.0	38.6	35.3	36.8	49.5
5	Sulphur Dioxide	mg/Nm^3	530.0	480.8	545.2	551.6	493.5	512.6	504.7	480.8
6	Oxides of Nitrogen	mg/Nm^3	150.5	150.8	168.9	168.5	156.2	146.3	168.5	164.5

Month: Feb' 2023

SN	Parameters	UOM	Unit-I	Unit-II	Unit-III	Unit-IV	Unit-V	Unit-VI	Unit-VII	Unit-VIII
1	Average Velocity	m/Sec	18.24	17.87	18.21	18.29	17.59	17.89	18.60	18.11
2	Flow	Nm^3/Sec	140.9	137.4	139.1	138.4	132.2	137.3	143.1	138.3
3	Stack Exit Temp.	^0C	160	162	165	169	172	163	162	165
4	Particulate Matter	mg/Nm^3	36.8	40.4	45.2	37.4	38.4	42.7	38.9	44.0
5	Sulphur Dioxide	mg/Nm^3	485.8	489.3	502.6	497.8	517.6	520.4	499.0	529.9
6	Oxides of Nitrogen	mg/Nm^3	139.1	146.2	149.2	164.5	160.4	168.56	142.1	139.1

Month: Mar' 2023

SN	Parameters	UOM	Unit-I	Unit-II	Unit-III	Unit-IV	Unit-V	Unit-VI	Unit-VII	Unit-VIII
1	Average Velocity	m/Sec	17.3	17.5	17.7	17.6	16.9	17.0	16.8	17.8
2	Flow	Nm^3/Sec	130.1	131.6	132.5	131.8	127.3	126.9	126.3	133.7
3	Stack Exit Temp.	^0C	172	172	173	175	173	176	172	174
4	Particulate Matter	mg/Nm^3	44.1	38.3	47.6	34.3	43.8	41.7	38.5	33.5
5	Sulphur Dioxide	mg/Nm^3	505.3	484.6	509.3	472.7	579.9	547.6	586.9	486.6
6	Oxides of Nitrogen	mg/Nm^3	145.9	150.7	151.7	150.6	170.1	165.4	163.0	138.2

ANNEXURE-IV

Unit # 1 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Oct-22	Average	473.44	95.79	33.00
	Max	523.14	140.25	44.58
Nov-22	Average	472.60	129.60	43.24
	Max	525.74	195.31	46.09
Dec-22	Average	484.66	130.83	38.85
	Max	528.74	216.54	44.45
Jan-23	Average	443.00	136.91	33.29
	Max	521.21	186.07	46.13
Feb-23	Average	495.26	151.47	37.63
	Max	536.37	254.48	46.10
Mar-23	Average	489.69	147.10	40.04
	Max	539.84	191.58	45.99

Unit # 2 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Oct-22	Average	416.17	103.53	34.34
	Max	447.87	148.52	46.21
Nov-22	Average	368.49	125.40	32.83
	Max	441.18	166.21	44.17
Dec-22	Average	398.01	125.15	38.75
	Max	452.70	169.68	46.16
Jan-23	Average	421.91	124.88	38.49
	Max	460.64	164.04	46.37
Feb-23	Average	404.22	111.71	38.05
	Max	450.43	170.75	45.96
Mar-23	Average	396.79	135.83	38.58
	Max	495.38	167.62	44.21

ANNEXURE-IV

Unit # 3 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Oct-22	Average	456.57	136.94	39.10
	Max	515.95	209.62	48.22
Nov-22	Average	477.93	116.08	49.77
	Max	517.67	163.13	48.79
Dec-22	Average	505.96	148.94	47.50
	Max	511.94	166.45	49.21
Jan-23	Average	427.48	116.00	44.78
	Max	525.53	169.94	48.46
Feb-23	Average	497.91	112.45	42.86
	Max	521.03	170.65	49.21
Mar-23	Average	465.29	129.56	44.11
	Max	539.92	146.68	48.43

Unit # 4 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Oct-22	Average	SHUT DOWN		
	Max			
Nov-22	Average	242.38	119.61	46.15
	Max	345.21	169.95	49.56
Dec-22	Average	397.52	147.71	43.95
	Max	523.60	222.45	49.53
Jan-23	Average	349.77	135.62	45.64
	Max	545.04	124.32	49.94
Feb-23	Average	294.62	136.71	43.59
	Max	453.75	515.52	48.69
Mar-23	Average	431.84	162.05	46.50
	Max	544.17	187.18	48.96

ANNEXURE-IV

Unit # 5 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Oct-22	Average	446.98	138.76	32.92
	Max	526.90	189.45	43.55
Nov-22	Average	477.34	202.69	20.94
	Max	526.59	236.23	37.12
Dec-22	Average	462.26	191.00	39.07
	Max	548.41	232.38	45.41
Jan-23	Average	455.40	169.70	39.01
	Max	536.43	243.20	49.39
Feb-23	Average	457.63	170.51	35.11
	Max	524.35	236.84	44.25
Mar-23	Average	471.88	156.53	40.81
	Max	555.56	229.31	48.54

Unit # 6 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Oct-22	Average	423.87	126.90	35.52
	Max	514.51	250.73	46.36
Nov-22	Average	498.68	178.02	43.59
	Max	526.82	285.61	46.50
Dec-22	Average	467.92	178.68	43.01
	Max	542.27	262.53	46.38
Jan-23	Average	484.13	190.94	41.35
	Max	547.67	288.27	46.38
Feb-23	Average	455.60	137.02	38.63
	Max	544.18	222.54	45.99
Mar-23	Average	518.46	162.18	45.44
	Max	545.35	227.91	46.34

ANNEXURE-II

Unit # 7 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Oct-22	Average	415.19	115.44	38.05
	Max	477.83	173.89	45.53
Nov-22	Average	404.41	162.97	42.06
	Max	462.99	264.66	46.12
Dec-22	Average	416.90	147.62	40.51
	Max	470.04	225.13	46.10
Jan-23	Average	420.81	123.56	36.71
	Max	498.88	164.04	45.91
Feb-23	Average	418.14	137.78	38.36
	Max	488.88	229.90	46.09
Mar-23	Average	391.09	157.00	41.19
	Max	494.77	172.00	46.12

Unit # 8 - Continuous Emission Monitoring System-CEMS DATA

Month		SOX mg/m3	NOX mg/m3	SPM mg/m3
Oct-22	Average	491.75	130.77	45.04
	Max	523.78	137.07	48.94
Nov-22	Average	451.62	151.24	45.57
	Max	528.03	214.40	48.72
Dec-22	Average	487.65	140.33	43.87
	Max	518.21	236.87	48.03
Jan-23	Average	496.13	133.71	46.48
	Max	529.76	161.80	48.45
Feb-23	Average	510.34	134.78	41.27
	Max	533.80	220.47	48.54
Mar-23	Average	465.27	125.88	45.89
	Max	530.19	181.33	48.90

JSW Energy (Barmer) Limited
Village & Post : Bhadresh, Post Box No. 30,
Distt : Barmer – 344001 (Rajasthan)
CIN : U31102MH1996PLC185098
Phone : +91 2982 229100
Website : www.jsw.in

ANNEXURE-V

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

(For the Period from Oct, 2022 to MARCH, 2023)

Name of Thermal Power Plant: JSW Energy (Barmer) Limited

Sl. No.	ASH GENERATION AND UTILIZATION (in LMT)							MODE OF ASH UTILIZATION AND UTILIZATION IN EACH MODE (in LMT)									
	Month	Coal consumed (Lakh Ton)	Lime 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.	In manufacture of Portland Pozzolana Cement Lakh Ton)	In construction of Highways & Roads including Flyovers	Part replacement of cement in concrete	In Hydro Power Sector in RCC Dam Construction	In Ash dyke raising	In reclamation of low lying Area	In Mine filling (Lakh Ton)	In Agriculture/ Waste land Devlopment	Others
1	2	3		4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	OCT-2022	4.6597	0.0484	13.45	0.66957	0.62791	93.78	0.15414	0.47377						0.0000		
2	NOV-2022	5.1665	0.0479	15.20	0.82766	0.78347	94.66	0.20932	0.57416						0.0000		
3	DEC-2022	5.0915	0.0711	14.75	0.81356	1.11279	136.78	0.47848	0.63431						0.0000		
4	JAN-2023	5.4550	0.0689	14.36	0.84387	0.94557	112.05	0.35636	0.58921						0.0000		
5	FEB-2023	5.3727	0.0587	14.18	0.81354	0.98420	120.98	0.41405	0.57016						0.0000		
6	MAR-2023	5.2561	0.0874	13.17	0.76894	0.79885	103.89	0.21487	0.58398						0.0000		
TOTAL		**31.0015**	**0.3824**	**14.19**	**4.73714**	**5.25279**	**110.36**	**1.182721**	**3.42558**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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Website : www.jsw.in

ANNEXURE-VI

Noise Level Monitoring- OCT'2022 – MAR' 2023

SN	Month	Apr		May		June		July		Aug		Sep	
	Noise Levels dB (A)	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
1	MAIN GATE INSIDE	72.7	66.0	70.7	64.0	71.6	65.9	71.7	65.2	72.4	62.7	70.0	64.1
2	COOLING TOWER END	71.7	65.0	73.7	67.0	69.0	66.2	70.7	67.4	70.4	60.7	71.2	68.4
3	NORTH WEST CORNER	70.7	63.0	71.7	64.0	68.9	65.6	72.1	67.9	70.5	61.0	66.6	63.3
4	Bhadresh Village	54.3	42.0	51.0	43.2	50.8	42.8	53.3	43.0	53.6	41.9	50.6	43.8
5	Isharpura Village	50.3	39.0	52.3	41.5	53.8	41.6	51.9	41.4	52.2	40.4	52.0	43.6
6	Chuli Village	52.7	44.0	53.7	45.0	42.7	44.9	52.4	41.0	54.8	43.2	54.5	42.3

ANNEXURE-VII

Ambient Air Quality Data- OCT, 2022 – MAR, 2023

Month – OCT' 2022

SN	Location (Avg.24 Hrs.)	PM-10 (µg/m³)	SO2 (µg/m³)	NO2 (µg/m³)	CO (mg/m³)	PM-2.5 (µg/m³)
1	Resevoir Area	24.83	18.21	29.45	0.66	5.01
2	Main Gate	31.04	10.91	30.58	0.59	26.21
3	Ash pond	31.04	7.90	29.88	0.35	14.97
4	Bhardesh Village	73.35	20.54	36.50	0.47	39.56
5	Ishrpura Village	72.35	19.40	34.17	0.46	41.27
6	Chuli Village	72.98	18.20	36.20	0.55	38.98

Month – Nov' 2022

SN	Location (Avg.24 Hrs.)	PM-10 (µg/m³)	SO2 (µg/m3)	NO2 (µg/m3)	CO (mg/m3)	PM-2.5 (µg/m3)
1	Resevoir Area	33.25	15.43	26.62	0.56	10.27
2	Main Gate	49.21	11.25	23.45	0.72	28.15
3	Ash pond	19.43	16.57	21.52	0.61	12.12
4	Bhardesh Village	70.17	19.83	27.47	0.56	35.43
5	Ishrpura Village	69.95	16.46	27.86	0.41	36.95
6	Chuli Village	70.82	14.71	30.81	0.52	31.01

Month – Dec' 2022

SN	Location (Avg.24 Hrs.)	PM-10 (µg/m³)	SO2 (µg/m3)	NO2 (µg/m3)	CO (mg/m3)	PM-2.5 (µg/m3)
1	Resevoir Area	25.48	18.64	16.04	0.62	7.61
2	Main Gate	32.91	8.62	19.53	0.59	22.26
3	Ash pond	31.18	14.21	26.96	0.32	14.39
4	Bhardesh Village	68.25	17.64	25.25	0.65	31.25
5	Ishrpura Village	65.47	21.07	27.56	0.56	22.56
6	Chuli Village	68.97	22.21	26.56	0.71	21.41

ANNEXURE-III

Month – Jan' 2023

SN	Location (Avg.24 Hrs.)	PM-10 (µg/m³)	SO2 (µg/m³)	NO2 (µg/m³)	CO (mg/m³)	PM-2.5 (µg/m³)
1	Resevoir Area	35.35	10.96	23.61	0.42	11.66
2	Main Gate	47.67	8.69	23.78	0.79	27.84
3	Ash pond	19.36	15.76	21.97	0.76	13.68
4	Bhardesh Village	75.62	17.01	27.65	0.23	36.25
5	Ishrpura Village	75.41	10.89	27.36	0.25	56.29
6	Chuli Village	64.35	14.52	29.54	0.35	28.64

Month – Feb' 2023

SN	Location (Avg.24 Hrs.)	PM-10 (µg/m³)	SO2 (µg/m³)	NO2 (µg/m³)	CO (mg/m³)	PM-2.5 (µg/m³)
1	Resevoir Area	31.83	16.58	22.96	0.62	10.16
2	Main Gate	38.34	12.05	23.77	0.55	23.64
3	Ash pond	20.89	15.44	21.91	0.60	14.46
4	Bhardesh Village	71.11	14.06	25.29	0.26	34.97
5	Ishrpura Village	73.35	14.07	26.16	0.39	52.22
6	Chuli Village	70.93	15.76	25.97	0.24	25.25

Month – Mar' 2023

SN	Location (Avg.24 Hrs.)	PM-10 (µg/m³)	SO2 (µg/m³)	NO2 (µg/m³)	CO (mg/m³)	PM-2.5 (µg/m³)
1	Resevoir Area	40.83	15.32	23.76	0.47	27.15
2	Main Gate	38.29	17.64	21.14	0.46	19.95
3	Ash pond	25.44	16.86	21.78	0.25	24.96
4	Bhardesh Village	66.85	12.27	24.94	0.26	35.87
5	Ishrpura Village	75.37	13.15	22.78	0.25	45.75
6	Chuli Village	66.16	15.72	25.91	0.24	32.15

ANNEXURE-VIII

Environmental Expenditure

Actual anticipated - As per WO issued

Environmental Expenditure Detail (FY_2021-22 & 2022-23)			
Sr. No.	**Particulars**	**Amount (Lacs) Rs.**	
		2021-2022	**2022-23**
1	Effluent Treatment Plant (ETP)	35.59	46.82
2	Sewage Treatment Plant (STP)	32.80	32.32
3	Green Belt Development	58.0	87.0
4	Continuous Emission Monitoring System (CEMS) 8Nos. -(AMC, Spares & Monitoring))	20.4	26.64
5	Continuous Ambient Air Quality Monitoring System (CAAQMS) 6 Nos. -(Rent and Electricity bills for surrounding plant outside installed Three station)	9.72	10.12
6	Environmental Monitoring (annual)& Instruments	8.05	8.50
7	ESP Modification	2136.00	1765.00
Total (Lacs) Rs.		**2300.56**	**1976.4**

ANNEXURE-IX

JSW Energy (Barmer) Limited
Village & Post : Bhadresh, Post Box No. 30,
Distt : Barmer – 344001 (Rajasthan)
CIN : U31102MH1996PLC185098
Phone : +91 2982 229100
Website : www.jsw.in

Ref: JSWE(B)L/ENV/22-23/015

Date: 12.12.2022

To,

Ministry of Environment Forests & Climate Change,
Integrated Regional Office,
A-209&218, Aranya Bhavan, M. G. Road,
Jaipur-304002, Rajasthan.

Sub: Compliance Report-Environmental Clearance for 1080 MW Lignite based Power Plant at Village-Bhadresh, District Barmer.

Dear Sir,

With reference to your letter No. J-13011/58/2006-IA-II (T) dated 20.07.2007 and 19.11.2009, and followed by Letter no. IV/ENV/R/Th-39/679/08/273, we herewith submit half-yearly compliance report, for the period pertaining to **APRIL- 2022 to SEPTEMBER- 2022**, for the conditions stipulated in the Environmental clearance issued for this Power Project. Analysis Data has uploaded on JSWEBL website – http://www.jsw.in/energy/about-barmer-plant.

We have taken up the Project activity at proposed site incorporating the conditions stipulated in this environmental clearance.

Thanking you.

For JSW ENERGY (BARMER) Ltd.

Vinod Jindal
DGM (Environment & Chemistry)

Enclosure:

1. Compliance Report
2. Water consumption Data -**Annexure I**
3. Effluent Water Data -**Annexure II**
4. Coal Analysis Data -**Annexure III**
5. CEMS & Stack Monitoring DATA -**Annexure IV**
6. Ash Utilization Data -**Annexure V**
7. Noise Monitoring -**Annexure VI**
8. AAQ Monitoring Data -**Annexure VII**
9. Environmental Expenditure - **Annexure VIII**
10. Last Compliance Report -**Annexure IX**

C.C.
The Director – MOEF, Delhi
The Member Secretary – Central Pollution Control Board, Delhi
The Member Secretary – RSPCB, Jaipur
The Regional Officer – RSPCB, Balotra.