



# Royal

## Environment Auditing & Consultancy Service

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Ref. No. : EIR/04/2016-17

Date : 05/02/2016

### Performance Evaluation of Air Pollution Control Equipments

#### Sinter Plant-1 (GPCB ID 35456)

Name of company: JINDAL S&A LIMITED,  
Village: Samaghatga  
Tol.: Mundra, Dist. Kutch

Test Method: As per IS Standards - 11205\_Part- 1A

Sr. No.	Particulars	Unit	S - 1	S - 2	S - 3	S - 4
01	Date of Sampling	---	Not in operation during visit	Not in operation during visit	18/12/16	18/01/2016
02	Attached to	---	Fuel & Flux crusher & screening building	Fuel & Flux crushing house	Sinter Furnace	Discharge shed
03	Stack height	meter	32	27	60	32
04	Stack Diameter	meter	1.4	1.4	2.0	1.3
05	Stack Temperature	°C	---	---	140	117
06	Ambient Temperature	°C	---	---	27	29
07	Average Velocity of Flue Gases	m/sec	---	---	35.8	34.9
08	Isokinetic Flowrate for Sampling	LPM	---	---	12	13
09	Inlet	mg/Nm <sup>3</sup>	---	---	3771	3145
10	Outlet	mg/Nm <sup>3</sup>	---	---	52	23
11	Efficiency	%	---	---	99.15	99.27

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Munraj  
Analyst



# Royal

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Ref. No. : 325/01/2016 16

Date : 03/02/2016

### STACK EMISSION MONITORING RESULTS

#### Sinter Plant - 1(GPCB ID:35456)

Name of company : JINDAL SAW LIMITED,  
Village: Samaghogha,  
Tal : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11235\_Part - 1/2007

Sr. No.	Particulars	Unit	S - 1	S - 2	S - 3	S - 4	S - 5	S - 6
01	Date of Sampling	--	Not Running During Visit	Not in operation during visit	28/01/2016	Not Running During Visit	Not Running During Visit	28/01/2016
02	Time of sampling	--			9:00			10:40
03	Stack Attached to	--	Fuel & Flux Crusher and Screening building	Fuel & Flux Crushing House	Sinter Furnace	Primary Mixture House	Secondary Mixture House	Discharge End
04	Air Pollution Control Measures	--	Bag Filter	Bag Filter	ESP	---	---	ESP
05	Stack Height	meter	32.0	27.00	50	19.75	38.00	32
06	Stack Diameter	meter	1.40	1.40	2.0	1.25	1.25	1.30
07	Stack Temperature	°C	---	---	146	---	---	122
08	Ambient Temperature	°C	---	---	27	---	---	29
09	Average Velocity of Flue Gases	m/sec	---	---	10.3	---	---	18.2
10	Isokinetic flow rate for P.M. Sampling	LPM	---	---	14	---	---	23
11	Gaseous Sampling Flow Rate	LPM	---	---	2.0	---	---	---
12	Permissible limits for PM	mg/Nm <sup>3</sup>	150	150	150	160	150	150
13	Measured Concentration of PM	mg/Nm <sup>3</sup>	---	---	32	---	---	23
14	Permissible limits for SO <sub>2</sub>	ppm	NA	NA	100	NA	NA	NA
15	Measured Concentration of SO <sub>2</sub>	ppm	---	---	ND	---	---	---
16	Permissible limits for NO <sub>x</sub>	ppm	NA	NA	60	NA	NA	NA
17	Measured Concentration of NO <sub>x</sub>	ppm	---	---	8.3	---	---	---

NA= Not Applicable





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Ref. No. : 540/01/2015-16

Date : 03/02/2016

### WORK ZONE NOISE LEVEL MEASUREMENT

### SINTER PLANT- 1 (GPCB ID:35456)

Name of company : JINDAL SA/W LIMITED,  
Village: Samaghcgha,  
Tal. : Mundra, Dist. Kutch

Date of sampling : 23rd January, 2016

Sr. No.	Location of Sampling	Value in dB(A)		
		Min.	Max.	Leq
1	Inside Control Room	42.7	48.5	44.8
2	Inside Mechanical Room	48.9	54.8	50.7
3	Inside Electrical Room	49.8	55.4	51.4
4	Inside Plant Office	51.9	59.7	53.9

Instruments used : Sound level meter, Model : SL - 4030 (Lutron Make)

Range : A - 30 to 80 dB, B-50 to 100 dB,C-80 to 130 dB.

Recalibration is due on : 25/09/2016

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*Signature*



*Signature*  
Analyst

**Form No. 37**  
(Prescribed under Rule 12-B)

Register containing particulars of monitoring of working environment required under Section 7-A (b)(6).

1. Name of the Department/Plant: Sinter Plant-6 at JINDAL SAW LIMITED, Samaghogha. (GPCB ID: 36496)
2. Raw materials, by products and finished products involved in the process: TOTAL DUST
3. Particulars of sampling

Date of Sampling: 18th January, 2016

Sr. No.	Location Operation monitored	Identified Contaminant	Sampling Instrument used	Airborne Contamination			TWA concentration (As given in Second Schedule)	Reference Method	Number of workers exposed at the location being monitored	Remark	Signature of person taking samples	Name (in black letters)
				Number of sample	Range	Average	mg/m <sup>3</sup>					
1	Sinter Plant At First Floor	Total Dust	Personal Respirable Dust sampler IAS 001	02	2-4	3.0	10	Gravimetric	5	—	<i>Mangaj</i>	Mr. MANOJ SONPAT

Instrument used: Extracted into personal sampler, Model No. IAS 001

Calibration Date: 02/11/2015

For: Royal Environment Auditing & Consultancy Service

*Srijadeja*  
Authorized Sign





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Ref No: 985602015-18

Date: 02/02/2016

### STACK EMISSION MONITORING RESULTS

Sinter Plant -2 (GPCE ID 29017)

Name of company: JINDAL SAW LIMITED

Village: Sarnahogra

Tal: Mundra, Dist: Rajkot

Test Method: As per IS Standards - 11265, Part - 10/87

Sl. No.	Particulars	Unit	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10
01	Date of Sampling	--	Not In Operation During The Visit	Not In Operation During The Visit	24/02/2016	Not In Operation During The Visit	NA	NA	12/02/2016	Not In Operation During The Visit	12/02/2016	Not In Operation During The Visit
02	Time of sampling	Hr.			14:30				8:00		10:15	
03	Stack Attached to		Fuel crushing deduster system (Flue)	Fuel crushing deduster system (Fuel)	Fuel Screening deduster System (Flue Screening)	No. 1 Transfer Station Deduster System	Primary Pincer Co-duster system	Secondary Pincer Deduster system	Sinter Furnace	Transfer station no. 4 & 5 dedusting system	Discharging End of sinter dedusting system	Pulverized Coal Injection
04	Air Pollution Control Measures	--	Dust Collector	Dust Collector	Dust Collector	Dust Collector	Dust Collector	Dust Collector	ESP	Dust Collector	ESP	Bag Filter
05	Stack Height	Meter	30	30	30	30	30	30	30	30	55	30
06	Stack Diameter	Meter	0.7	0.7	0.7	0.7	--	--	2	0.7	1.3	1.00
07	Stack Temperature	°C	--	--	38	--	--	--	154	--	107	--
08	Ambient Temperature	°C	--	--	34	--	--	--	38	--	29	--
09	Average Velocity of Flue Gases	m/sec	--	--	8.7	--	--	--	13.6	--	31.9	--
12	Isokinetic flow rate for P.M. Sampling	LPM	--	--	18	--	--	--	14	--	17	--
11	Gaseous Sampling Flow Rate	LPM	--	--	--	--	--	--	20	--	--	--
17	Permissible Limits for PM	mg/Nm <sup>3</sup>	150	150	150	150	150	150	150	150	150	150
13	Measured Concentration of PM	mg/Nm <sup>3</sup>	--	--	21	--	--	--	46	--	24	--
14	Permissible Limits for SO <sub>2</sub>	ppm	NA	NA	NA	NA	NA	NA	100	NA	NA	100 (part)
15	Measured Concentration of SO <sub>2</sub>	ppm	--	--	--	--	--	--	ND	--	--	--
16	Permissible Limits for NO <sub>x</sub>	ppm	NA	NA	NA	NA	NA	NA	50	NA	NA	50 (ppm)
17	Measured Concentration of NO <sub>x</sub>	ppm	--	--	--	--	--	--	85	--	--	--

Note: Minimum Detectable Limit for SO<sub>2</sub> & NO<sub>x</sub> is 0.1 and 0.01 ppm respectively.  
Instrument Used: 2010/2010/2010/2010 - Emission analyser - PCE 100  
Date of analysis: 22/02/2016

NA: Not Applicable



*Mansingh*



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Ref. No.: 52010/2015-16

Date: 03/02/2016

### Performance Evaluation of Air Pollution Control Equipments

#### Sinter Plant-2 (GPCR ID:29017)

Name of company : JINCAL SAW LIMITED,  
 Village: Semaghochha,  
 Tal - Mundra Dist. Kutch

Test Method : As per IS Standards - 11255, Part - 10

Sr. No.	Particulars	Unit	S-1	S-2	S-3	S-7	S-9	S-11
01	Date of Sampling	---	Not in operation during visit	Not in operation during visit	29/01/2016	15/02/2016	15/01/2016	Not in operation during visit
02	Attached to	---	Fuel crushing deduster system (Flux)	Fuel crushing deduster system (Flux)	Fuel screening deduster system (Flux screening)	Sinter Furnace	Discharging end of Sinter dusting System	Pulverised Coal Injection
03	Stack Height	Meter	30	30	30	50	50	32
04	Stack Diameter	Meter	0.7	0.7	0.7	2.0	1.3	1.0
05	Stack Temperature	°C	32	50	45	144	97	136
06	Ambient Temperature	°C	21	30	29	26	29	32
07	Average Velocity of Flue Gases	m/sec.	12.0	14.2	14.2	27.4	30.7	11.6
08	IsoKinetic Flowrate for Sampling	LPM	22	24	25	13	15	16
09	Inlet	mg/Nm <sup>3</sup>	2555	2430	2764	3993	3301	2384
10	Outlet	mg/Nm <sup>3</sup>	14	10	26	70	23	18
11	Efficiency	%	99.45	99.51	99.06	95.00	99.12	99.24

Instrument Used : Stack Monitoring Kit, EcoLab make, FSS 100  
 Calibration due on 25/04/2016

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*Signature*



*Praveen*  
Analyst



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Ref. No. : 543/01/2015-18

Date : 03/02/2016

### WORK ZONE NOISE LEVEL MEASUREMENT

#### SINTER PLANT - 2 (29017)

Name of company : JINDAL SAW LIMITED,

Village: Samaghcgha,

Tal. : Mundra, Dist. Kutch

Date of sampling : 23rd January, 2016

Sr. No.	Location of Sampling	Value in dB(A)		
		Min.	Max.	Leq
C1.	Inside Control Room	51.5	53.7	52.3
C2.	Inside Operator Room	60.4	65.8	61.7
C3.	Near Proportioning Building	64.1	66.7	65.5
C4.	Near Crusher House	68.7	76.6	71.2

Instruments used : Sound level meter, Model : SL - 4030 (Lutron Make)

Range : A - 30 to 80 dB, B-50 to 100 dB,C-80 to 130 dB.

Recalibration is due on : 25/09/2013

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*Mymoj*  
Analyst



**Form No. 37**  
(Prescribed under Rule 12-B)

Register containing particulars of monitoring of working environment required under Section 7-A (a)(c).

1. Name of the Department/Plant.: Sinter Plant-2 at JINDAL SAW LIMITED, Samaghogha. (GPCB ID:29017)
2. Raw materials, by products and finished products involved in the process. TOTAL DUST
3. Particulars of sampling

Date of Sampling : 18th January, 2016

Sr. No	Location Operation monitored	Identified Contaminant	Sampling Instrument used	Airborne Contamination			TWA concentration (As given in Second Schedule)	Reference Method	Number of workers exposed at the location being monitored	Remarks	Signature of person taking samples	Name (in block letters)
				Number of sample	Range	Average	mg/m <sup>3</sup>					
1	Sinter Plant At First Floor	Total Dust	Personal Respirable Dust sampler IAS 001	02	2-5	3.5	10	Gravimetric	4	—	<i>Mummy</i>	Mr. MANOU SONRAT

Instruments used : Envirotech make personal sampler, Model No. IAS 001

Calibration Due on. : 02/11/2016

For: Royal Environmental Auditing & Consultancy Service



*Sajadaja.*  
Authorized Sign



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Ref. No. : 519/01/2015-16

Date : 03/02/2016

### Blast Furnace Plant-1(GPCB ID:18037)

Name of company : JINDAL SAW LIMITED,

Village: Samaghogha,

Tal. : Mundra Dist. Kutch

Test Method : As per IS Standards - 11255\_Part - 1/3

Sr. No.	Particulars	Unit	S - 1
01	Date of Sampling	--	19/01/2016
02	Attached to	--	De-dustingSystem
03	Stack Height	Meter	35
04	Stack Duct Diameter	Meter	1.4
05	Stack Temperature	°C	54
06	Ambient Temperature	°C	27
07	Average Velocity of Flue Gases	m/sec.	13.5
08	IsoKinetic Flowrate for Sampling	LPM	28
09	Inlet	mg/Nm <sup>3</sup>	1694
10	Outlet	mg/Nm <sup>3</sup>	4
11	Efficiency	%	99.76

Instrument Used : Stack Monitoring Kit - Ecolech make - ESS 100

Calibration due on 25/09/2016





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Ref. No. : 526/01/2015-16

Date : 03/02/2016

### STACK EMISSION MONITORING RESULTS

#### BLAST FURNACE-1 (GPCB ID:18037)

Name of company : JINDAL SAW LIMITED,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255\_Part - 1/2/3/7

Sr. No.	Particulars	Unit	S - 1	S - 2	S - 3	S - 4	S - 5
01	Date of Sampling	---	13/01/2016	13/01/2016	13/01/2016	13/01/2016	Monitoring Not Possible
02	Time of sampling	HR.	9.25	9.00	10.15	8.15	
03	Stack Attached to	---	Dedusting System	Boiler - I	Boiler - II	Stove Stack	Flare Stack
04	Air Pollution Control Measures	---	Bag Filter	---	---	---	---
05	Stack Height	Meter	35.0	45	45	50.0	30
06	Stack Diameter	Meter	1.5	1.4	1.4	2.25	---
07	Stack Temperature	°C	46	172	170	221	---
08	Ambient Temperature	°C	27	26	26	25	---
09	Average Velocity of Flue Gases	m/sec.	11.9	5.2	5.4	3.9	---
10	Isokinetic flow rate for P.M. Sampling	LPM	21	10	10	10	---
11	Gaseous Sampling Flow Rate	LPM	2.0	2.0	2.0	2.0	---
12	Permissible limits for PM	mg/Nm <sup>3</sup>	150	150	150	150	150
13	Measured Concentration of PM	mg/Nm <sup>3</sup>	4	7	9	3	---
14	Permissible limits for SO <sub>2</sub>	mg/Nm <sup>3</sup>	40	40	40	40	40
15	Measured Concentration of SO <sub>2</sub>	mg/Nm <sup>3</sup>	ND	ND	ND	ND	---
16	Permissible limits for NO <sub>x</sub>	mg/Nm <sup>3</sup>	25	25	25	25	25
17	Measured Concentration of NO <sub>x</sub>	mg/Nm <sup>3</sup>	ND	ND	ND	ND	---

Note : Minimum Detectable Limit of SO<sub>2</sub> & NO<sub>x</sub> is 0.1 and 0.01 ppm respectively.  
Instrument Used : Stack Monitoring Kit - Ecotechmake - ES8 100  
Calibration due on 25/02/2016

N.D - Not Detectable

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Manoj  
Analyst



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Ref No. : 529/01/2016-16

Date : 03/02/2016

### STACK EMISSION MONITORING RESULTS

#### Captive Power Plant (GPCB ID:18037)

Name of company : JINDAL SAW LIMITED,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255\_Part - 1/2/3/7

Sr. No.	Particulars	Unit	S - 1	S - 2	S - 3	S - 4
01	Date of Sampling	--	27/01/2016	18/01/2016	18/01/2016	Not in Operation During The Visit
02	Time of sampling	Hr.	11.30	10.30	11.45	
03	Stack Attached to	--	6000 KVA D.G.	3240 KVA D.G.	3240 KVA D.G.	1180 KVA D.G.
04	Air Pollution Control Measures	--	--	--	--	--
05	Stack Height	Meter	57.0	35	35	35
06	Stack Diameter	Meter	1.064	1.464	1.494	0.930
07	Stack Temperature	°C	268	247	242	--
08	Ambient Temperature	°C	23	28	29	--
09	Average Velocity of Flue Gases	m/sec.	22.4	23.5	23.6	--
10	Isokinetic flow rate for P.M. Sampling	_PM	23	26	26	--
11	Gaseous Sampling Flow Rate	_PM	2.0	2.0	2.0	--
12	Permissible limits for PM	mg/Nm <sup>3</sup>	150	150	150	150
13	Measured Concentration of PM.	mg/Nm <sup>3</sup>	67	83	58	--
14	Permissible limits for SO <sub>2</sub>	ppm	100	100	100	100
15	Measured Concentration of SO <sub>2</sub>	ppm	32.8	28.3	27.5	--
16	Permissible limits for NO <sub>x</sub>	ppm	50	50	50	50
17	Measured Concentration of NO <sub>x</sub>	ppm	21.6	21.9	22.8	--

Note : Minimum Detectable Limit of SO<sub>2</sub> & NO<sub>x</sub> is 0.1 and 0.01 ppm respectively.

Instrument Used : Stack Monitoring Kit - Ecotech make - ESS 100

Calibration done on 25/02/2016

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Ref. No. : 541/01/2015-16

Date : 03/02/2016

### WORK ZONE NOISE LEVEL MEASUREMENT BLAST FURNACE- 1 (GPCB ID:18037)

Name of company : JINDAL SAW LIMITED,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Date of sampling : 23rd January, 2016

Sr. No.	Location of Sampling	Value in dB(A)		
		Min.	Max.	Leq
01.	Nr. Stock House	64.9	75.6	67.9
02.	Inside Control Room	46.4	54.9	48.7
03.	Inside Control room of Cast House	47.6	52.3	49.3
04.	Inside Laboratory	43.8	48.9	44.9
05.	Inside Control Room of Blower House	57.1	63.8	60.1
06.	Inside Control Room of CPP	53.8	62.8	55.6

Instruments used : Sound level meter, Model : SL - 4030 (Lutron Make)

Range : A - 30 to 80 dB, B-50 to 100 dB,C-80 to 130 dB.

Recalibration is due on : 25/09/2016

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M. Meher  
Analyst

**Form No. 37**  
(Prescribed under Rule 12-B)

Register containing particulars of monitoring of working environment required under Section 7 A (a)(ii).  
 1 Name of the Department/Plant: BF Plant-1 at JINDAL SAW LIMITED, Sonmughha, (GPCR ID: 18037)  
 2 Raw materials, by products and finished products involved in the process: TOTAL DUST & CO.  
 3 Method of sampling

Date of Sampling : 13th January 2016

Sr. No	Location Operation monitored	Identified Contaminant	Sampling Instrument used	Airborne Contaminant(s)			TWA concentration (As given in Second Schedule)	Reference Method	Number of workers exposed at the location being monitored	Remark	Signature person taking samples	Name (in block letters)
				Number of sample	Range	Average						
1	BF Plant (Cast House)	CO	Personal Respirable Dust sampler AB CO1	02	16-19	17.5	65	Gravimetric	5	---	<i>Munej</i>	Mr. MANOJ SONRAT
		Total Dust			3.6	4.5	10					

Instruments used: Envirotech make personal sampler, Model No. IAS 001  
 Calibration Date: 02/11/2016

For: Royal Environment Auditing & Consultancy Service

*Munej*  
 Authorized Sign





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Ref. No. : 543/C1/2015-16

Date : 03/02/2016

### REPORT OF DOMESTIC WASTE WATER ANALYSIS

Name of company : JINDAL SAW LIMITED,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Source of Sample Collection : Sewage Treatment Plant (Inlet & Outlet)

Date of Sampling : 28/01/2016

Test Method : As per IS Standards - 3024

Sr. No.	Parameters	Unit	GPCB limits for Treated Effluent	Raw Sewage	Treated Effluent
01.	pH	pH Unit	---	7.59	7.31
02.	BOD (3 Days at 27°C)	mg/l	<20	173	12
03.	Total Dissolve Solid	mg/l	...	1611	1762
04.	COD	mg/l	...	241	42
05.	Total Suspended Solid	mg/l	<30	274	20
06.	Oil & Grease	mg/l	...	ND	ND
07.	Residual Chlorine	mg/l	Min. 0.5	---	0.65

ND=Not Detectable

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Ref. No. : 524/01/2015-16

Date : 03/02/2016

### Performance Evaluation of Air Pollution Control Equipments

#### Blast Furnace Plant-2 (GPCB ID:29026)

Name of company : JINDAL SAW LIMITED,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255\_Part - 1/3

Sr. No.	Particulars	Unit	S - 1	S - 4	S - 5
01	Date of Sampling	--	19/01/2016	25/01/2016	25/01/2016
02	Attached to	---	Dedusting System	Coke fine building dust collecting system	Iron Ore fine & Dust Collecting System
03	Stack Height	Meter	40	30	30
04	Stack Duct Diameter	Meter	1.5	0.85	0.85
05	Stack Temperature	°C	62	30	44
06	Ambient Temperature	°C	28	29	29
07	Average Velocity of Flue Gases	m/sec.	36.7	15.1	14.5
08	Isokinetic Flowrate for Sampling	LPM	10	26	26
09	Inlet	mg/Nm <sup>3</sup>	4115	2012	1543
10	Outlet	mg/Nm <sup>3</sup>	27	5	4
11	Efficiency	%	99.34	99.75	99.74

Instrument Used : Stack Monitoring Kit - Ecotech make - ESS 100

Calibration due on 25/09/2016

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Ref. No. :52701/2015/18

Date : 03/02/2016

### STACK EMISSION MONITORING RESULTS

#### BLAST FURNACE - 2 (GPCB ID:29026)

Name of company: JINDAL SAW LIMITED.

Village: Samaghogha.

Tal.: Mundra, Dist. Kutch

Test Method : As per IS Standard - 11255\_Part - 1/2007

Sr. No.	Particulars	Unit	S - 1	S - 2	S - 3	S - 4	S - 5
01	Date of Sampling	--	15/01/2016	16/01/2016	Monitoring Not Possible	25/01/2016	25/01/2016
02	Time of sampling	Hr.	13.10	16.15		13.15	16.15
03	Stack Attached to	--	Dedusting System	Slave Stack	Flare Stack	Coke fine building dust collecting system	Iron Ore fine & Dust Collecting System
04	Air Pollution Control Measure	---	Bag Filter	---	---	Bag Filter	Bag Filter
05	Stack Height	Meter	40.0	55.0	45	30.0	30.0
06	Stack Diameter	Meter	1.5	2.250	---	---	0.85
07	Stack Temperature	°C	44	213	---	54	37
08	Ambient Temperature	°C	28	29	---	29	29
09	Average Velocity of Flue Gases	m/sec.	29.8	3.6	---	13.6	11.3
10	Isokinetic flow rate for P.M. Sampling	LPM	13	9	---	23	20
11	Gaseous Sampling Flow Rate	LPM	---	---	---	---	---
12	Permissible limits for PM	mg/Nm <sup>3</sup>	150	150	150	150	150
13	Measured Concentration of PM	mg/Nm <sup>3</sup>	27	2	---	5	4
14	Permissible limits for SO <sub>2</sub>	mg/Nm <sup>3</sup>	NA	NA	NA	NA	NA
15	Measured Concentration of SO <sub>2</sub>	mg/Nm <sup>3</sup>	---	---	---	---	---
16	Permissible limits for NO <sub>x</sub>	mg/Nm <sup>3</sup>	NA	NA	NA	NA	NA
17	Measured Concentration of NO <sub>x</sub>	mg/Nm <sup>3</sup>	---	---	---	---	---

Note : Minimum Detectable Limit of SO<sub>2</sub> & NO<sub>x</sub> is 0.1 and 0.01 ppm respectively.

NA=Not Applicable

Instruments Used : Stack Monitoring - Gt - Coatech make - EDS 100

Calibration done on 25/09/2016

Royal Environment Auditing & Consultancy Service



*Manoj*  
Analyst



# Royal

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Ref. No. : 544/01/2015-16

Date : 03/02/2016

### WORK ZONE NOISE LEVEL MEASUREMENT BLAST FURNACE - 2 (GPCB ID:29026)

Name of company : JINDAL SAW LIMITED,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Date of sampling : 23rd January, 2016

Sr. No.	Location of Sampling	Value in dB(A)		
		Min.	Max.	Leq
01.	Inside Control Room	58.2	63.7	55.8
02.	Nr. Stock House	65.6	70.3	67.2
03.	C/R Blower House	66.4	75.1	69.5

Instruments used : Sound level meter, Model : SL - 4030 (Lutron Make)

Range : A - 30 to 80 dB, B-50 to 100 dB, C-80 to 130 dB.

Recalibration is due on : 25/09/2016

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Analyst



**Form No. 37**  
**(Proscribed under Rule 12-B)**

Register containing particulars of monitoring of working environment required under Section 7-A (a)(c).

- 1 Name of the Department/Plant : BF Plant-2 at JINDAL SAW LIMITED, Samaghohra, (GPOB ID 29628)
- 2 Raw materials, by products and finished products involved in the process, TOTAL DUST & CO.
- 3 Particulars of sampling

Date of Sampling : 15th January 2016

Sr. No	Location Operation monitored	Identified Contaminant	Sampling Instrument used	Airborne Contamination			TWA concentration (As given in Second Schedule)	Reference Method	Number of workers exposed at the location being monitored	Remark	Signature person taking samples	Name (In block letters)
				Number of sample	Range	Average						
1	BF Plant (Cast House)	CO	Personal Respirable Dust sampler IAS 001	02	15-16	15.5	55	Gravimetric	4	---	<i>Mung</i>	Mr. MANOJ SONRAT
		Total Dust			3-6	4.0	10					

Instruments used : Envirotech make personal sampler, Model No. IAS 001

Collector (Date) : 02/11/2016

For, Royal Environment Auditing & Consultancy Service



*Mung*  
Authorized Sign



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Ref. No. : 57101/2015-16

Date : 03/02/2016

### Performance Evaluation of Air Pollution Control Equipments Pipe Plant (GPCB ID:18036)

Name of company : JINDAL SAW LIMITED,  
Village: Samagheghra,  
Tal : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255, Part - 1/5

Sr. No.	Particulars	Unit	S - 7	S - 8	S - 12	S - 18	S - 22
01	Date of Sampling	---	12/01/2016	12/01/2016	25/01/2016	25/01/2016	12/01/2016
02	Attached to		Sand Reclamation	Common stack Converter - I & II	Core Cleaning & Dusting - I	Core Cleaning & Dusting - II	Mg Converter - II
03	Stack Height	Meter	32	30	30	30	30
04	Stack Diameter	Meter	0.3	0.6	0.8	0.6	0.5
05	Stack Temperature	°C	108	54	51	54	50
06	Ambient Temperature	°C	29	27	26	27	28
07	Average Velocity of Flue Gases	m/sec	33.4	16.3	15.7	16.5	16.8
08	IsoKinetic Flowrate for Sampling	LPM	14	23	27	28	25
09	Inlet	mg/Nm <sup>3</sup>	3649	4210	3630	4143	4310
10	Outlet	mg/Nm <sup>3</sup>	34	30	32	41	34
11	Efficiency	%	99.07	99.29	99.17	99.01	99.21

Instrument Used : Stack Monitoring Kit - Protech make - ESS 120  
Calibration due on 25/02/2016

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*[Handwritten Signature]*



*[Handwritten Signature]*  
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Ref. No. : R29012016-10

Date : 03/02/2016

### Performance Evaluation of Air Pollution Control Equipments Pipe Plant (GPCB ID:18036)

Name of company : JINDAL SAW LIMITED,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255, Part - 1/2

Sr. No.	Particulars	Unit	S - 9	S - 10	S - 16	S - 18	S - 20	S - 24	S - 25
01	Date of Sampling	---	10/01/2016	Not in operation during visit	11/01/2016	Not in operation during visit	Not in operation during visit	Not in operation during visit	16/01/2016
02	Attached to	---	Zinc Coating - I	Barrel Grinding - I	Zinc Coating - II	Barrel Grinding - II	Zinc Coating - III	Barrel Grinding - III	Zinc Coating - IV & V
03	Stack Height	Meter	30	30	30	30	30	30	30
04	Stack Duct Diameter	Meter	1.5	1.6	0.6	0.6	0.7	0.6	0.9
05	Stack Temperature	°C	16	...	68	...	...	...	45
06	Ambient Temperature	°C	26	...	27	...	...	...	27
07	Average Velocity of Flue Gases	m/sec.	7.2	...	16.6	...	...	...	15.6
08	Inertial Flowrate for Sampling	LPW	20	...	25	...	...	...	27
09	Inlet	mg/Nm <sup>3</sup>	1802	...	2111	...	...	...	1530
10	Outlet	mg/Nm <sup>3</sup>	18	...	13	...	...	...	11
11	Efficiency	%	90.15	...	99.30	...	...	...	99.28

Instrument Used : Stack Monitoring Kit - Ecomch make - 2001104  
Calibration No. on 26/06/2015

Royal Environment Auditing & Consultancy Service

*D. J. Jadhav*



*Mamraj*



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Ref No. : 523/01/2015-18

Date : 03/02/2016

### Performance Evaluation of Air Pollution Control Equipments

#### Pipe Plant (SDP-2) (GPCB ID:18036)

Name of company : JINDAL SAW LIMITED,

Village: Gamaghogha,

Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255\_Part - 1/3

Sr. No.	Particulars	Unit	S - 1	S - 5	S - 6	S-8
01	Date of Sampling	---	15/01/2016	15/01/2016	Not in operation during visit	15/01/2016
02	Attached to	---	Mg Treatment	Zinc Coating	Tri-Grinding	Zinc Coating machine
03	Stack Height	Meter	30	30	30	30
04	Stack Duct Diameter	Meter	1.00	1.00	1.00	0.8
05	Stack Temperature	°C	51	48	...	43
06	Ambient Temperature	°C	27	28	...	29
07	Average Velocity of Flue Gases	m/sec.	12.7	13.4	...	11.3
08	IsoKinetic Flowrate for Sampling	LPM	22	23	...	20
09	Inlet	mg/Nm <sup>3</sup>	3031	2812	...	1402
10	Outlet	mg/Nm <sup>3</sup>	28	16	...	8
11	Efficiency	%	99.08	99.45	...	99.43

Instrument Used : Stack Monitoring Kit - Ecotech make - EGS 103

Calibration due on 25/09/2016

Royal Environment Auditing & Consultancy Service

*Signature*



*Manoj Analyst*



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Ref. No. : 533/01/2016-16

Date : 03/02/2016

### STACK EMISSION MONITORING RESULTS

Pipe Plant (GPCB ID:18036)

Name of company : JINDAL SAW LIMITED,  
 Village: Samaghogha,  
 Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255 Part - 1/2/3/7

Sr. No.	Particulars	Unit	S - 11	S - 17	S - 25	S - 26	S - 27
01	Date of Sampling	---	Not in Operation During The Visit	16/01/2016	16/01/2016	16/01/2016	16/01/2016
02	Time of sampling	Hr.		11:30	12:30	15:30	16:30
03	Stack Attached to	---	Bitumin Drying Oven - I	Common stack Bitumin Drying Oven - II & Boiler	Shot Blasing - I	Shot Blasing - II	Shot Blasing - III
04	Air Pollution Control Measure	---	---	---	Bag Filter	Bag Filter	Bag Filter
05	Stack Height	Metre	32.6	32.8	10.0	10.0	10.0
06	Stack Diameter	Metre	1.375	1.375	0.41	0.41	1.125
07	Stack Temperature	°C	---	154	43	41	42
08	Ambient Temperature	°C	---	29	31	32	32
09	Average Velocity of Flue Gases	m/sec.	---	6.6	12.8	11.3	11.7
10	Isokinetic flow rate for P.M. Sampling	LPM	---	17	23	20	21
11	Gaseous Sampling Flow Rate	LPM	---	2.0	2.0	2.0	2.0
12	Permissible limits for PM	mg/Nm <sup>3</sup>	150	150	150	150	150
13	Measured Concentration of PM	mg/Nm <sup>3</sup>	---	64	17	16	15
14	Permissible limits for SO <sub>2</sub>	mg/Nm <sup>3</sup>	100 ppm	100 ppm	40	40	40
15	Measured Concentration of SO <sub>2</sub>	mg/Nm <sup>3</sup>	---	25.1	ND	ND	ND
16	Permissible limits for NO <sub>x</sub>	mg/Nm <sup>3</sup>	50 ppm	50 ppm	25	25	25
17	Measured Concentration of NO <sub>x</sub>	mg/Nm <sup>3</sup>	---	23.4	ND	ND	ND

Note : Minimum Detectable Limit of SO<sub>2</sub> & NO<sub>x</sub> is 0.7 and 0.01 ppm respectively.

N.D= Not Detectable

Instrument Used : Stack Monitoring Kit - EcoTech make - ESS 100

Calibration due on 25/02/2016

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Mansoj  
Analyst



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Ref. No. : 521/01/2015-16

Date : 09/02/2016

### STACK EMISSION MONITORING RESULTS

#### Pipe Plant (GPCB ID:18036)

Name of Company : JINDAL SAW LIMITED,

Village: Samaghogha,

Tal: Mandra, Dist: Kutch

Test Method : As per IS Standards - 11255\_11257

Sr. No	Particulars	Unit	S - 0	S - 1	S - 16	S - 20	S - 22	S - 23
01	Date of Sampling	—	12/01/2016	11/01/2015	11/01/2016	15/01/2016	12/01/2016	16/01/2016
02	Time of sampling	Hr.	10.15	9.45	11.00	12.00	11.30	10.30
03	Stack Attached to	—	Common stack Mg Converter-III	Zn Coating - I	Zn Coating - II	Zn Coating - III	Mg Converter - III	Zn Coating - IV & V
04	Air Pollution Control Measures	—	Bag Filter	Cyclone Separator & Bag Filter	Cyclone Separator & Bag Filter	Cyclone Separator & Bag Filter	Bag Filter	Cyclone Separator & Bag Filter
05	Stack Height	Meter	31	30	30	30	30	30
06	Stack Diameter	Meter	0.5	0.5	0.6	0.6	0.5	0.5
07	Stack Temperature	°C	42	43	43	44	54	38
08	Ambient Temperature	°C	27	25	27	25	26	27
09	Average Velocity of Flue Gases	m/sec.	24.3	14.3	14.3	13.7	10.3	4.8
10	Isokinetic flow rate for P.M. Sampling	LPM	11	25	26	24	13	20
11	Gaseous Sampling Flow Rate	LPM	2.0	—	—	—	2.0	—
12	Permissible limits for PM	mg/Nm <sup>3</sup>	150	20 (Zn)	20 (Zn)	20 (Zn)	150	20 (Zn)
13	Measured Concentration of PM	mg/Nm <sup>3</sup>	30	18 (Zn)	13 (Zn)	11 (Zn)	24	11 (Zn)
14	Permissible limits for SO <sub>2</sub>	mg/Nm <sup>3</sup>	40	NA	NA	NA	40	NA
15	Measured Concentration of SO <sub>2</sub>	mg/Nm <sup>3</sup>	ND	—	—	—	ND	—
16	Permissible limits for NO <sub>x</sub>	mg/Nm <sup>3</sup>	25	NA	NA	NA	25	NA
17	Measured Concentration of NO <sub>x</sub>	mg/Nm <sup>3</sup>	2.7	—	—	—	2.1	—

Note: Minimum Detectable Limit of SO<sub>2</sub> & NO<sub>x</sub> is 0.1 and 0.01 ppm respectively.

Instrument Used: Stack Monitoring Kit - Ecochek make - ESS 100

Confirmation due on 25/08/2016

NA=Not Applicable



Momenj  
Analyst



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Ref. No : 532/01/2016-16

Date : 03/02/2016

### STACK EMISSION MONITORING RESULTS Pipe Plant (GPCB ID:18036)

Name of company : JINDAL SAW LIMITED.

Village: Samaghughra,

Tal : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11266\_1/2/3/7

Sr. No.	Particulars	Unit	S - 1	S - 2	S - 3	S - 4	S - 5	S - 6	S - 12	S - 18
01	Date of Sampling	---	05/01/2016	06/01/2016	06/01/2016	06/01/2016	06/01/2016	06/01/2016	25/01/2016	25/01/2016
02	Time of sampling	Hr.	9:15	10:30	10:45	11:30	12:00	10:00	9:20	10:30
03	Stack Attached to	---	Core Shop-I	Core Shop-II	Core Shop-III	Core Shop-IV	Core Shop-V	Core Shop-VI	Core Cleaning & Dusting-I	Core Cleaning & Dusting-II
04	Air Pollution Control Measures	---	---	---	---	---	---	---	Bag Filter	Bag Filter
05	Stack Height	Meter	30	30	30	30	30	30	30	30
06	Stack Diameter	Meter	0.584	0.584	0.584	0.584	0.584	0.584	0.0	0.0
07	Stack Temperature	°C	35	35	30	27	41	38	48	45
08	Ambient Temperature	°C	26	28	27	27	20	28	26	27
09	Average Velocity of Flue Gases	m/sec.	4.1	3.5	4.3	6.5	5.7	5.3	13.2	14.1
10	Isokinetic flow rate for P.M. Sampling	LPM	17	15	18	22	23	22	24	25
11	Gaseous Sampling Flow Rate	LPM	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
12	Permissible limits for PM	ng/m <sup>3</sup>	150	150	150	100	150	160	150	150
13	Measured Concentration of PM	ng/m <sup>3</sup>	11	12	25	31	48	10	32	41
14	Permissible limits for SO <sub>2</sub>	ng/m <sup>3</sup>	40	40	40	40	40	40	40	40
15	Measured Concentration of SO <sub>2</sub>	ng/m <sup>3</sup>	1.8	2.1	1.4	1.5	2.3	1.3	ND	ND
16	Permissible limits for NO <sub>x</sub>	ng/m <sup>3</sup>	25	25	25	25	25	25	25	25
17	Measured Concentration of NO <sub>x</sub>	ng/m <sup>3</sup>	5.1	2.7	2.4	2.8	5.1	1.9	5.2	4.6

N.D.- Not Detectible

Note: Minimum Detectable Limit of SO<sub>2</sub> & NO<sub>x</sub> is 0.1 and 0.01 ppm respectively.

Instrument Used: Stack Monitoring Kit - Eco-technika - ESS 100

Certified on 25/02/2016

Royal Environment Auditing & Consultancy Service



*Money*  
Analyst



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Ref. No.: 039/01/2015/10

Date: 10/05/2016

### STACK EMISSION MONITORING RESULTS

Pipe Plant (GPC3 ID:18036)

Name of company: JINDAL SAUN LIMITED,  
Village: Samnagri,  
Ta.: Mundra, Dist. Saurashtra

Test Method: As per IS Standards - 11256\_14/2017

Sr. No.	Particulars	Unit	S - 7	S - 10	S - 13	S - 14	S - 16	S - 17	S - 21	S - 24
01	Date of Sampling	---	10/05/2016	Not in operation during visit	09/05/2016	22/01/2016	Not in operation during visit	20/01/2016	Not in operation during visit	Not in operation during visit
02	Time of sampling	hr.	15:10		9:50	10:50		11:50		
03	Stack Attached to	---	Sand Reclamation	Garrel Grinding - I	Annuling Furnace - I	Annuling Furnace - I	Garrel Grinding - I	Annuling Furnace - II	Garrel Grinding - II	Garrel Grinding - IVSV
04	Air Pollution Control Devices	---	Bag Filter	Doc Filter	---	---	Bag Filter	---	Bag Filter	Bag Filter
05	Stack Height	Meter	30	20	32	32	30	32	20	30
06	Stack Diameter	Meter	0.9	0.6	1.375	1.375	0.5	1.375	0.5	0.5
07	Stack Temperature	°C	84	---	192	162	---	165	---	---
08	Ambient Temperature	°C	29	---	20	21	---	29	---	---
09	Average Velocity of Flue Gases	m/sec.	14.5	---	6.6	5.3	---	5.7	---	---
10	Isokinetic flow rate for P.M. Sampling	LPM	29	---	15	17	---	16	---	---
11	Gases Sampling Flow Rate	LPM	2.0	---	2.0	2.0	---	2.0	---	---
12	Permissible limits for PM	mg/m <sup>3</sup>	150	100	122	160	150	150	150	160
13	Measured Concentration of PM	mg/m <sup>3</sup>	34	---	11	11	---	17	---	---
14	Permissible limits for SO <sub>2</sub>	mg/Nm <sup>3</sup>	40	40	100 (PPM)	100 (PPM)	40	100 (ppm)	40	40
15	Measured Concentration of SO <sub>2</sub>	mg/Nm <sup>3</sup>	6.5	---	0.2	0.6	---	2.9	---	---
16	Permissible limits for NO <sub>x</sub>	mg/Nm <sup>3</sup>	25	25	50 (PPM)	50 (PPM)	25	50 (PPM)	25	25
17	Measured Concentration of NO <sub>x</sub>	mg/Nm <sup>3</sup>	12.4	---	7.5 (PPM)	7.9 (PPM)	---	9.1 (PPM)	---	---

N.D. - Not Detectable

Note: Minimum Detectable Limit of SO<sub>2</sub> & NO<sub>x</sub> is 0.1 and 0.01 ppm respectively.  
Instrument Used in Stack Monitoring NH - Beckman model - 850-100  
Calibration date: 25/05/2016

Royal Environment Auditing & Consultancy Service

*Signature*



*Signature*



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Ref No: 2348/2015-16

Date: 10/02/2016

### STACK EMISSION MONITORING RESULTS

Pipe Plant (SDP-2) (GPCB ID:18036)

Name of company: JINDAL SAW LIMITED  
 Village: Samagraha  
 Tal.: Morwa, Dist: RAJKOT

Test Method: IS 15021 (Part 1) - 1999, 19204

Sr. No.	Particulars	Unit	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8
01	Date of Sampling	---	15/01/2016	28/01/2016	29/01/2016	29/01/2016	16/01/2016	10/01/2016	Not in operation during visit	
02	Time of sampling	hr.	11:00	11:30	11:45	12:00	10:50	10:30	14:15	
03	Stack Attached to	---	Magnesium Treatment	Social Coasting	Annealing Furnace - I	Annealing Furnace - II	Zinc Coating	Ts- Grinding Section	Pre & Post Heating	Zinc Coating Machine
04	Air Pollution Control Measures	---	Bag Filter	Bag Filter	---	---	Bag Filter	Bag Filter	---	---
05	Stack Height	Meter	30	30	45	45	30	30	30	50
06	Stack Diameter	Meter	1.20	0.90	0.66	1.05	1.00	1.20	1.80	1.20
07	Stack Temperature	°C	42	59	128	159	40	38.00	---	57
08	Ambient Temperature	°C	27	28	25	20	22	30.0	---	29
09	Average Velocity of Flue Gases	m/sec	3.8	2.5	4.2	3.0	2.5	4.2	---	3.2
10	Isokinetic flow rate for PM Sampling	LPM	16	14	13	12	15	17	---	13
11	Gaseous Sampling Flow Rate	LPM	---	---	2.0	2.0	---	---	---	---
12	Permissible limits for PM	mg/Nm <sup>3</sup>	50	30	50	50	50	50	50	50
13	Measured Concentration of PM	mg/Nm <sup>3</sup>	26	10	16	17	16.00	12	---	9
14	Permissible limits for SO <sub>2</sub>	PPM	NA	NA	100	100	NA	NA	NA	NA
15	Measured Concentration of SO <sub>2</sub>	PPM	---	---	2.8	2.8	---	---	---	---
16	Permissible limits for NO <sub>x</sub>	PPM	NA	NA	50	50	NA	NA	NA	NA
17	Measured Concentration of NO <sub>x</sub>	PPM	---	---	4.2	3.0	---	---	---	---

Note: Minimum Detectable Limit of SO<sub>2</sub> & NO<sub>x</sub> is 0.1 and 0.1 ppm respectively.  
 Instrument Used: Stack Monitoring K.T. - error rate - 5% - 10%  
 Calibration no. is 2479211K

ND= Not Detectable  
 NA= Not Applicable

Royal Environment Auditing & Consultancy Service



*Mansing*  
 Analyst



# Royal

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Ref. No. : 542/01/2015-16

Date : 03/02/2016

### WORK ZONE NOISE LEVEL MEASUREMENT PIPE PLANT (GPCB ID:18036)

Name of company : JINDAL SAW LIMITED,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Date of sampling : 23rd January, 2016

Sr. No.	Location of Sampling	Value in dB(A)		
		Min.	Max.	Leq
01.	Inside Control Room of Annealing Furnace of D SP / SDP	49.7	54.4	52.3
02	Inside Control Room – Mill Area of Spiral Plant	61.2	65.1	62.4
03	Nr. Pipe Cutting Area of Spiral Plant	68.4	78.2	72.2
04	Inside JCO Plant	65.5	76.7	68.1
05	Inside DISP / SDP Plant	69.8	80.5	74.3
06	Inside Coating Plant	66.3	75.1	71.1
07	Nr. CCM SDP-2	65.1	73.4	67.6
08	Inside Control Room of Annealing Furnace of SDP 2	51.4	55.2	52.6
09	Nr. Zinc Coating SDP-2	67.6	78.7	73.5
10	Near Mould Shop	77.2	86.5	79.4

Instruments used : Sound level meter, Model : SL - 4030 (Lutron Make)

Range : A - 30 to 80 dE, B-50 to 100 dB,C-80 to 130 dB.

Recalibration is due on : 25/09/2016



**Form No. 37**  
**(Prescribed under Rule 12-B)**

Register containing particulars of monitoring of working environment required under Section 7-A (a)(ii).

- 1 Name of the Department/Plant: DSP, JCO & Coating Units at JINDAL SAW LIMITED, Samaghecha, IGPCB ID: 18033
- 2 Raw materials, by products and finished products involved in the process: TOTAL DUST
- 3 Particulars of sampling

Date of Sampling: 19th & 20th January, 2016

Sr. No	Location Operation monitored	Identified Contaminant	Sampling Instrument used	Airborne Contamination			TWA concentration (As given in Second Schedule)	Reference Method	Number of workers exposed at the location being monitored	Remark	Signature of person taking samples	Name (in block letters)
				Number of sample	Range	Average						
1	Spiral Part (Nr. LWU)	Total Dust	Personal Respirable Dust sampler IAS 001	02	1-4	2.5	10	Gravimetric	4	---	<i>Murthy</i>	Mr. MANOJ SCNRAT
2	JCO Plant (V. JCO Press)	Total Dust		02	2-5	3.5	10	Gravimetric	3	---		
3	Coating Plant-1 (Shot Blasting Area)	Total Dust		02	4-5	4.5	10	Gravimetric	3	---		
4	CCM Area (SDP / DGP)	Total Dust		02	6-7	6.5	10	Gravimetric	4	---		
5	Coating Plant-2 (Shot Blasting Area)	Total Dust		02	4-6	5.0	10	Gravimetric	3	---		
6	CCM Area (SDP 2)	Total Dust		02	6-7	6.0	10	Gravimetric	5	---		

Instruments used: Envirotech make personal sampler, Model No. IAS 001

Calibration Due on: 02/11/2016

For: Royal Environment Auditing & Consultancy Service



*Srijada*  
Authorized Sign



# Royal

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Date: 08/02/2016

Ref. No.: 511012015-16

### NATIONAL AMBIENT AIR QUALITY MONITORING REPORT FOR THE MONTH - JANUARY : 2016

Name of company: JINDAL SAW LIMITED  
 Village: Banaghpada,  
 Tal.: M. Vada, Dist.: RAJKOT

Test Method: IS 18438:2015 Standards - C102\_20150208

Sr. No.	Particulars	Unit	Location No.1 - Security Main Gate (S)										
			01	02	03	04	05	06	07	08			
01.	No. of Week	---											
02.	Date & Time Starting of Monitoring	---	21/01/2016 07:00	04/02/2016 25:10	07/02/2016 08:20	11/02/2016 05:20	15/02/2016 09:15	18/02/2016 05:30	22/02/2016 00:30	25/02/2016 05:05	28/02/2016 04:15		
03.	Date & Time Ending of Monitoring	---	02/01/2016 08:00	05/01/2016 08:10	08/01/2016 08:00	12/01/2016 08:30	15/01/2016 08:15	19/01/2016 08:30	23/01/2016 08:20	26/01/2016 08:05	29/01/2016 08:10		
04.	Duration of Sampling	Hrs.	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00		
05.	Direction Wind Direction (From)	---	NNE	NNE	NE	NNW	NE	NNW	NNW	NNE	NNW		
06.	Average Wind Speed	Km/Hr	2.6	1.5	3.2	1.7	2.7	2.7	2.7	2.9	2.1		
07.	Average flow rate for Dust Monitoring PM <sub>10</sub>	m <sup>3</sup> /hr	1.20	1.28	1.21	1.18	1.19	1.20	1.22	1.23	1.25		
08.	Average flow rate for Dust Monitoring PM <sub>2.5</sub>	m <sup>3</sup> /hr	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		
09.	Average flow rate for Gas Monitoring	LPM	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2		
10.	Permissible limits for PM <sub>10</sub> *	µg/m <sup>3</sup>	100	100	100	100	100	100	100	100	100		
11.	Measured Concentration of PM <sub>10</sub>	µg/m <sup>3</sup>	38	28	40	40	45	38	43	37	35		
12.	Permissible limits for PM <sub>2.5</sub> *	µg/m <sup>3</sup>	60	60	60	60	60	60	60	60	60		
13.	Measured Concentration of PM <sub>2.5</sub>	µg/m <sup>3</sup>	14	12	12	17	20	12	21	13	15		
14.	Permissible limits for SO <sub>2</sub> *	µg/m <sup>3</sup>	80	80	80	80	80	80	80	80	80		
15.	Measured Concentration of SO <sub>2</sub>	µg/m <sup>3</sup>	5.2	5.8	4.7	4.1	4.4	4.0	4.5	3.9	3.5		
16.	Permissible limits for NO <sub>2</sub> *	µg/m <sup>3</sup>	80	80	80	80	80	80	80	80	80		
17.	Measured Concentration of NO <sub>2</sub>	µg/m <sup>3</sup>	15.5	15.8	15.2	15.1	15.0	15.7	15.9	15.5	15.4		
18.	Permissible limit for CO*	µg/m <sup>3</sup>	2000	2000	2000	2000	2000	2000	2000	2000	2000		
19.	Measured Concentration of CO	µg/m <sup>3</sup>	S.D.L.	S.D.L.	S.D.L.	S.D.L.	S.D.L.	S.D.L.	S.D.L.	S.D.L.	S.D.L.		

Instrument used: (1) 3M DP408 (PM<sub>10</sub>), (2) 3M DP408 (PM<sub>2.5</sub>), (3) 3M DP408 (SO<sub>2</sub>), (4) 3M DP408 (NO<sub>2</sub>), (5) 3M DP408 (CO)

Calibrated on: 14/02/2016

\*Permissible limits are as per NAAQ Standards (2015) (Part I)

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*[Handwritten Signature]*



*[Handwritten Signature]*



# Royal

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Ref. No. : 012010018-16

Date : 05/02/2015

### NATIONAL AMBIENT AIR QUALITY MONITORING REPORT FOR THE MONTH - JANUARY : 2015

Name of company : JINDAL SAW LIMITED  
 Village : Samajpatti,  
 Tal. : Mundra, Dist. Rajkot

Test Method : As per IS Standards : IS:31023

Sr. No.	Particulars	Unit	Location No.2 : Sinter plant - 1 (NWA)							
			01	02	03	04	05	06	07	08
01.	No. of Week	---	01	02	03	04	05	06	07	08
02.	Date & Time Starting of Monitoring	---	01/01/2015 08:30	04/01/2015 16:30	05/01/2015 08:30	11/01/2015 08:30	16/01/2015 08:30	18/01/2015 08:30	22/01/2015 08:30	28/01/2015 08:30
03.	Date & Time Ending of Monitoring	---	02/01/2015 03:30	05/01/2015 25:30	05/01/2015 05:30	15/01/2015 05:30	16/01/2015 09:30	18/01/2015 07:30	22/01/2015 06:45	28/01/2015 05:25
04.	Duration of Sampling	Min	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00
05.	Direction of Wind Direction (From)	---	NNE	NNE	NE	NE	NE	NNE	NNE	NNE
06.	Average Wind Speed	Km/hr.	3.5	1.5	3.0	1.7	2.7	2.9	2.1	2.2
07.	Average flow rate for Dust Monitoring (PM <sub>10</sub> )	m <sup>3</sup> /hr.	1.16	1.13	1.17	1.16	1.16	1.14	1.21	1.11
08.	Average flow rate for Dust Monitoring (PM <sub>2.5</sub> )	m <sup>3</sup> /hr.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
09.	Average flow rate for Gas Monitoring	LPN	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
10.	Permissible limits for PM <sub>10</sub> *	µg/m <sup>3</sup>	100	100	100	100	100	100	100	100
11.	Measured Concentration of PM <sub>10</sub>	µg/m <sup>3</sup>	47	45	42	42	40	45	39	50
12.	Permissible limits for PM <sub>2.5</sub> *	µg/m <sup>3</sup>	60	60	60	60	60	60	60	60
13.	Measured Concentration of PM <sub>2.5</sub>	µg/m <sup>3</sup>	20	21	21	22	24	17	20	16
14.	Permissible limits for SO <sub>2</sub> *	µg/m <sup>3</sup>	80	80	80	80	80	80	80	80
15.	Measured Concentration of SO <sub>2</sub>	µg/m <sup>3</sup>	4.1	6.2	5.6	5.2	5.0	4.3	4.8	4.4
16.	Permissible limits for NO <sub>x</sub> *	µg/m <sup>3</sup>	80	80	80	80	80	80	80	80
17.	Measured Concentration of NO <sub>x</sub>	µg/m <sup>3</sup>	17.4	16.7	16.3	17.5	17.4	18.0	17.5	15.0
18.	Permissible limit for CO *	µg/m <sup>3</sup>	2000	2000	2000	2000	2000	2000	2000	2000
19.	Measured Concentration of CO	µg/m <sup>3</sup>	B.D.L.	B.D.L.	B.D.L.	B.D.L.	B.D.L.	B.D.L.	B.D.L.	B.D.L.

Measured (µg/m<sup>3</sup>): (1) 24 hrs. SO<sub>2</sub> (PM<sub>10</sub>-24 hr), (2) 24 hrs. of Maximum Concentration (PM<sub>10</sub>), (3) 24 hrs. of PM<sub>2.5</sub> (PM<sub>2.5</sub>), (4) 24 hrs. of CO (PM<sub>10</sub>-24)

IS:31023 (2012)

\*Conversion factor as per IS:31023 (2012)

B.D.L. - Below Detection Limit

Royal Environment Auditing & Consultancy Service

*Signature*



*Signature*



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Ref. No. : 578212016-16

Date : 03/02/2016

### NATIONAL AMBIENT AIR QUALITY MONITORING REPORT FOR THE MONTH - JANUARY : 2016

Name of company : JINDAL SAW LIMITED  
 Village: Somnaghigha,  
 Tal : Mundra, Dist: Kutch

Test Method : As per IS Standards - 5182\_05/10/20

Sr. No.	Particulars	Unit	Location No.3 : Nr. Work Shop Spiral-II (W)								
			01	02	03	04	05	06	07	08	
01	No. of Week	---									
02	Date & Time Starting of Monitoring	---	01/01/2016 08:40	04/01/2016 08:00	05/01/2016 08:45	10/01/2016 08:00	15/01/2016 08:55	18/01/2016 08:10	23/01/2016 08:05	25/01/2016 08:45	28/01/2016 08:55
03	Date & Time Ending of Monitoring	---	02/01/2016 08:40	05/01/2016 08:50	06/01/2016 08:45	12/01/2016 08:00	16/01/2016 08:50	19/01/2016 08:10	23/01/2016 08:05	26/01/2016 08:45	28/01/2016 08:50
04	Duration of Sampling	Min	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00
05	Dominant Wind Direction (From)	---	NNE	SSE	SE	SW	SE	NNW	SSE	SSE	NNW
06	Average Wind Speed	km/hr	0.0	1.5	3.0	1.7	2.7	3.7	2.7	2.5	2.1
07	Average flow rate for Dust Monitoring PM <sub>10</sub>	m <sup>3</sup> /hr	1.75	1.21	1.15	1.12	1.15	1.10	1.14	1.20	1.25
08	Average flow rate for Dust Monitoring PM <sub>2.5</sub>	m <sup>3</sup> /hr	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
09	Average flow rate for Gas Monitoring	LFM	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
10	Permissible limits for PM <sub>10</sub> *	µg/m <sup>3</sup>	100	100	100	100	100	100	100	100	100
11	Measured Concentration of PM <sub>10</sub>	µg/m <sup>3</sup>	34	40	36	42	38	36	35	30	28
12	Permissible limits for PM <sub>2.5</sub> *	µg/m <sup>3</sup>	60	60	60	60	60	60	60	60	60
13	Measured Concentration of PM <sub>2.5</sub>	µg/m <sup>3</sup>	12	15	13	14	13	21	19	17	20
14	Permissible limits for SO <sub>2</sub> *	µg/m <sup>3</sup>	30	30	30	34	30	30	30	30	30
15	Measured Concentration of SO <sub>2</sub>	µg/m <sup>3</sup>	3.2	2.8	3.0	2.2	2.5	3.7	4.1	2.4	3.1
16	Permissible limits for NO <sub>2</sub> *	µg/m <sup>3</sup>	50	50	50	50	50	50	50	50	50
17	Measured Concentration of NO <sub>2</sub>	µg/m <sup>3</sup>	15.4	14.7	19.2	14.9	15.5	16.6	14.2	12.5	12.0
18	Permissible limit for CO**	ppm/8	2000	2000	2000	2000	2000	2000	2000	2000	2000
19	Measured Concentration of CO	µg/m <sup>3</sup>	B.D.L.	B.D.L.	B.D.L.	B.D.L.	B.D.L.	B.D.L.	B.D.L.	B.D.L.	B.D.L.

Soil analyzed: (1) Diesel, PDC (AFM - 2) TEL, 100 Mm. of Remote Sampler (RSC 100) 20 Mm. PM 2.5 Sampler (RSC 127)

All Calculations on 03/02/2016

The results are as per NAAQ Standard 1986 November 2004

S.D.L. - Sakal Datta (A-1) Unit

Royal Environment Auditing & Consultancy Service

*Syad*



*Munshi*



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Ref. No. : 514/07/2015-16

Date : 03/02/2016

### AMBIENT AIR QUALITY MONITORING REPORT

Name of company : JINDAL SAW LIMITED  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5142\_2/10/23

Sr.No.	Particulars	Unit	AAQM - 1 (S)	AAQM - 2 (SSW)	AAQM - 3 (WSW)	AAQM - 4 (NW)
01.	Location of Ambient	---	Old Colony (Nr. Environment Laboratory)	Nr. Rain Water Harvesting	LPG Yard (Nr. Water Reservoir)	Between Sinter - 2 & Spiral - 2
02.	Date of sampling	---	12/01/2016	12/01/2016	13/01/2016	13/01/2016
03.	Time of sampling	---	8.05	8.20	8.10	8.35
04.	Duration of Sampling	Min.	1440.00	1440.00	1440.00	1440.00
05.	Dominant Wind Direction (From)	---	NNW	NNW	NNE	NNE
06.	Average Wind Speed	KmHr.	1.7	1.7	2.3	2.3
07.	Average flow rate during sampling	m <sup>3</sup> /Hr.	1.0	1.0	1.0	1.0
08.	Average flow rate for Gas sampling	LPM	0.2	0.2	0.2	0.2
09.	Permissible limits for PM 10*	µg/m <sup>3</sup>	100	100	100	100
10.	Measured Concentration of PM 10	µg/m <sup>3</sup>	24	48	43	31
11.	Permissible limits for PM 2.5*	µg/m <sup>3</sup>	60	60	60	60
12.	Measured Concentration of PM 2.5	µg/m <sup>3</sup>	11	23	18	15
13.	Permissible limits for SO <sub>2</sub> *	µg/m <sup>3</sup>	80	80	80	80
14.	Measured Concentration of SO <sub>2</sub>	µg/m <sup>3</sup>	2.3	3.5	4.2	3.7
15.	Permissible limits for NO <sub>2</sub> *	µg/m <sup>3</sup>	80	80	80	80
16.	Measured Concentration of NO <sub>2</sub>	µg/m <sup>3</sup>	7.6	12.5	11.5	10.4
17.	Permissible limit for CO **	µg/m <sup>3</sup>	2000	2000	2000	2000
18.	Measured Concentration of CO	µg/m <sup>3</sup>	BDL	BDL	RDL	BDL

Instrument used: (1) EcoTech make 3 Nos. RDC (APM - 217 BL), (2) 3 Nos. Gaseous Sampling Kit (PPM 108), & 3 Nos. PM 2.5 Sampler (VAS 127)

All Calibration done on: 25/05/2016

BDL - Below Detectable Limit

\*Permissible Limits are as per NAAQ Standard - 6th November/2009.





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Ref. No. : 515/01/2015-16

Date : 03/02/2016

### AMBIENT AIR QUALITY MONITORING REPORT

Name of company : JINDAL SAW LIMITED  
 Village: Samaghogha,  
 Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5162\_2/8/10/20

Sr. No.	Particulars	Unit	AAQM - 5 (NE)	AAQM - 6 (SE)	AAQM - 7 (ESE)	AAQM - 8 (E)
01.	Location of Ambient	---	Labour Colony	New Colony (Shopping Centre )	VIP Guest House	Weigh bridge
02.	Date of sampling	---	14/01/2016	14/01/2016	15/01/2016	15/01/2016
03.	Time of sampling	---	8.15	8.40	8.25	8.45
04.	Duration of Sampling	Min.	1440.00	1440.00	1440.00	1440.00
05.	Dominant Wind Direction (From)	---	NNE	NNE	NE	NE
06.	Average Wind Speed	Km/Hr.	1.0	1.0	2.7	2.7
07.	Average flow rate during sampling	m <sup>3</sup> /Hr.	1.0	1.0	1.0	1.0
08.	Average flow rate for Gas sampling	LPM	0.2	0.2	0.2	0.2
09.	Permissible limits for PM 10*	µg/m <sup>3</sup>	100	100	100	100
10.	Measured Concentration of PM 10	µg/m <sup>3</sup>	40	35	33	54
11.	Permissible limits for PM 2.5*	µg/m <sup>3</sup>	60	60	60	60
12.	Measured Concentration of PM 2.5	µg/m <sup>3</sup>	19	22	14	20
13.	Permissible limits for SO <sub>2</sub> *	µg/m <sup>3</sup>	80	80	80	80
14.	Measured Concentration of SO <sub>2</sub>	µg/m <sup>3</sup>	5.2	3.4	4.2	6.1
15.	Permissible limits for NO <sub>2</sub> *	µg/m <sup>3</sup>	80	80	80	80
16.	Measured Concentration of NO <sub>2</sub>	µg/m <sup>3</sup>	11.8	10.2	13.7	15.8
17.	Permissible limit for CO **	µg/m <sup>3</sup>	2000	2000	2000	2000
18.	Measured Concentration of CO	µg/m <sup>3</sup>	BDL	BDL	BDL	BDL

Instrument used : (1) EcoLab make 3 Nos. RDS (APM - 217 UL), (2) 3 Nos. Gravimetric Sampling Kit (APM 103), & 3 Nos. PM 2.5 Sampler (AAS 177)

All Calibration due on : 25/02/2016

BDL- Below Detectable Limit

\*Permissible Limits are as per NAAQ Standard (En Novembar 2008)



*Mudra*



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Ref. No. : 16/01/2015-16

Date : 03/02/2016

### FUGITIVE EMISSION MONITORING REPORT

Name of company : JINDAL SAW LIMITED  
 Village: Samraghria,  
 Tal. : Mundia, Dist. Kutch

Test Method : As per IS Standards - 5182, Part - 2(01/11/2012)

Sr. No.	Particulars	Unit	A - 1	A - 2	A - 3
01.	Location of Ambient	---	RMH Junction House	RMH Stock House	Sinter RMH Yard
02.	Date of sampling	---	15/01/2016	15/01/2016	20/01/2016
03.	Time of sampling	---	8.00	8.15	8.30
04.	Duration of Sampling	Hr.	3.00	3.00	3.00
05.	Dominant Wind Direction (From)	---	KNW	NNW	NNE
06.	Average Wind Speed	Km/Hr.	4.2	4.2	4.6
07.	Average flow rate during sampling	m <sup>3</sup> /hr.	1.0	1.0	1.0
08.	Average flow rate for Gas sampling	LPM	0.2	0.2	0.2
09.	Permissible limits for PM 10*	µg/m <sup>3</sup>	3000	3000	3000
10.	Measured Concentration of PM 10	µg/m <sup>3</sup>	1482	1310	1246
11.	Permissible limits for SO <sub>2</sub> *	µg/m <sup>3</sup>	150	150	150
12.	Measured Concentration of SO <sub>2</sub>	µg/m <sup>3</sup>	13.6	12.7	14.5
13.	Permissible limits for NO <sub>2</sub> *	µg/m <sup>3</sup>	120	120	120
14.	Measured Concentration of NO <sub>2</sub>	µg/m <sup>3</sup>	26.7	27.2	26.9
15.	Permissible limit for CO **	µg/m <sup>3</sup>	2000	2000	2000
16.	Measured Concentration of CO	µg/m <sup>3</sup>	BDL	BDL	BDL
17.	Permissible limit for Pb*	µg/m <sup>3</sup>	2	2	2
18.	Measured Concentration of Pb	µg/m <sup>3</sup>	ND	ND	ND

Instruments used : (1) 3 Nos. RDS (APM - 217 SL), (2) 3 Nos. Gaseous Sample (APM 108)  
 All Calibration done on : 25/16/2016

BDL - Below Detectable Limit  
 ND - Not Detectable



Mohini  
 Analyst



# Royal

## Environment Auditing & Consultancy Service

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Ref. No. 517/01/2015-16

Date: 03/02/2016

### FUGITIVE EMISSION MONITORING REPORT

Name of company: JINDAL SAW LIMITED  
Village: Samragi ugle,  
Tal.: Mundra, Dist. Kutch

Test Method : As per IS Standards - 5102\_Part - 2010/23022

Sr. No.	Particulars	Unit	A - 4	A - 5	A - 6
01.	Location of Ambient	---	Sinter 2 Ground Hopper	DISP "CCM" Area	BF CAST HOUSE
02.	Date of sampling	---	20/01/2016	21/01/2016	21/01/2016
03.	Time of sampling	---	8.50	8.20	8.45
04.	Duration of Sampling	Hr.	8.00	8.00	8.00
05.	Dominant Wind Direction (From)	---	NNE	NNE	NNE
06.	Average Wind Speed	Km/Hr.	4.6	4.6	4.8
07.	Average flow rate during sampling	m <sup>3</sup> /hr.	1.0	1.0	1.0
08.	Average flow rate for Gas sampling	LPM	0.2	0.2	0.2
09.	Permissible limits for PM 10*	µg/m <sup>3</sup>	3000	3000	3000
10.	Measured Concentration of PM 10	µg/m <sup>3</sup>	855	603	1081
11.	Permissible limits for SO <sub>2</sub> *	µg/m <sup>3</sup>	150	150	150
12.	Measured Concentration of SO <sub>2</sub>	µg/m <sup>3</sup>	11.8	15.7	12.3
13.	Permissible limits for NO <sub>2</sub> *	µg/m <sup>3</sup>	120	120	120
14.	Measured Concentration of NO <sub>2</sub>	µg/m <sup>3</sup>	22.9	26.4	26.1
15.	Permissible limit for CO**	µg/m <sup>3</sup>	2000	2000	2000
16.	Measured Concentration of CO	µg/m <sup>3</sup>	BDL	BDL	BDL
17.	Permissible limit for Pb*	µg/m <sup>3</sup>	2	2	2
18.	Measured Concentration of Pb	µg/m <sup>3</sup>	ND	ND	ND

Instrument used: (1) 3 Nos. ROS (AFM - 217 B1), (2) 3 Nos. Gaseous Sample (AFM 109)  
NI Collection date: 25/02/2016

BDL- Below Detectable Limit  
ND= Not Detectable



Muney  
Analyst



# Royal

## Environment Auditing & Consultancy Service

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Ref. No : 543/01/2015-16

Date : 03/02/2016

### AMBIENT NOISE LEVEL MEASUREMENT

Name of company : JINDAL SAW LIMITED,

Village: Samaghgha,

Tal. : Mundra, Dist. Kutch

Date of sampling : 22nd January, 2016

Sr. No.	Location of Sampling	Value in dB(A) Day Time			Value in dB(A) Night Time		
		Min.	Max.	Leq	Min.	Max.	Leq
01.	Admin. Building	43.5	51.2	44.5	38.6	44.4	40.4
02.	Old Colony	37.6	42.3	39.2	34.4	40.1	35.3
03.	Nr. LPG Yard	53.4	61.7	54.6	49.7	55.6	51.1
04.	New Colony (School)	38.4	44.8	40.1	35.2	39.7	36.1
05.	Nr. SDP 2	57.7	65.2	58.6	54.3	60.5	56.2
06.	Nr. Coating Plant	65.2	64.5	59.5	52.6	62.2	55.5
07.	Nr. Gate No. 2	56.7	63.6	58.1	50.3	58.1	51.8
08.	Nr. Sinter Plant-1	61.4	66.1	62.1	54.6	60.3	56.3
09.	Nr. Sinter Plant-2	58.5	67.2	60.7	55.7	61.6	57.2
10.	Nr. Blast Furnace-1	57.4	61.7	58.2	52.6	59.4	54.1
11.	Nr. Blast Furnace-2	56.5	62.1	57.4	46.1	52.3	49.6
12.	Nr. Main Gate (Security Office)	44.3	53.3	46.6	40.5	45.7	42.1

Instruments used : Sound level meter, Model : SL - 4030 (Lutron Make)

Range : A - 30 to 80 dB, B-50 to 100 dB, C-50 to 130 dB.

Recalibration is due on : 25/08/2016

