



# Royal

## Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s. Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph.: +91 281 2360695 ■ E-mail : royalsenvironment@live.com ■ admin@royalconsultancy.com

Ref. No. 360/12/2013-14

Date: 31/12/2013

### AMBIENT AIR QUALITY MONITORING REPORT

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5182\_2/4/6

Sr. No.	Particulars	Unit	NAAQMS - 1	NAAQMS - 2	NAAQMS - 3
01.	Location of Ambient	----	Main Gate (S)	Sinter Plant - 1 (NNW)	Nr. Workshop Spiral - II (W)
02.	Date of sampling	----	06/12/2013	06/12/2013	06/12/2013
03.	Time of sampling	----	9.15	9.40	9.55
04.	Duration of Sampling	Min.	1440.00	1440.00	1440.00
05.	Dominant Wind Direction (From)	----	N	N	N
06.	Average Wind Speed	Km/Hr.	2 to 12	2 to 12	2 to 12
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.	<b>Permissible limits for PM 10</b>	<b>µg/m<sup>3</sup></b>	<b>100</b>	<b>100</b>	<b>100</b>
10.	Measured Concentration of PM 10	µg/m <sup>3</sup>	47	56	35
11.	<b>Permissible limits for PM 2.5</b>	<b>µg/m<sup>3</sup></b>	<b>60</b>	<b>60</b>	<b>60</b>
12.	Measured Concentration of PM 2.5	µg/m <sup>3</sup>	27	31	22
13.	<b>Permissible limits for SO<sub>2</sub></b>	<b>µg/m<sup>3</sup></b>	<b>80</b>	<b>80</b>	<b>80</b>
14.	Measured Concentration of SO <sub>2</sub>	µg/m <sup>3</sup>	12.4	13.1	12.1
15.	<b>Permissible limits for NO<sub>2</sub></b>	<b>µg/m<sup>3</sup></b>	<b>80</b>	<b>80</b>	<b>80</b>
16.	Measured Concentration of NO <sub>2</sub>	µg/m <sup>3</sup>	20.9	23.2	21.7
17.	<b>Permissible limit for CO **</b>	<b>µg/m<sup>3</sup></b>	<b>2000</b>	<b>2000</b>	<b>2000</b>
18.	Measured Concentration of CO	µg/m <sup>3</sup>	298	346	261

Instrument used : (1) Envirotech make 1 No. of RDS (APM - 460 BL) (2) 1 No. of Gaseous Sampling Kit (APM 411) (3) Ecotech make Attachment of 1 No. of PM 2.5 Sampler (AAS 127) (4) Ecotech make 2 Nos. of RDS (AAS 217 BL) (5) Gaseous sampling attachment (AAS 109)

(6) Ecotech make 2 Nos. of PM 2.5 sampler (AAS 127)

Calibration due on: (1) 05/05/2014 (2) 05/05/2014 (3) 04/05/2014 (4) 06/05/2014 (5) 05/05/2014 (6) 06/05/2014

Royal Environment Auditing & Consultancy Service

Analyst



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Ref. No. 361/12/2013-14

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Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5182\_2/4/6

Sr. No.	Particulars	Unit	NAAQMS - 1	NAAQMS - 2	NAAQMS - 3
01.	Location of Ambient	----	Main Gate (S)	Sinter Plant - 1 (NNW)	Nr. Workshop Spiral - II (W)
02.	Date of sampling	----	07/12/2013	07/12/2013	07/12/2013
03.	Time of sampling	----	9.25	9.50	10.10
04.	Duration of Sampling	Min.	1440.00	1440.00	1440.00
05.	Dominant Wind Direction (From)	----	N	N	N
06.	Average Wind Speed	Km/Hr.	3 to 10	3 to 10	3 to 10
07.	Average flow rate during sampling	m3/Hr.	1.0	1.0	1.0
08.	Average flow rate for Gas sampling	LPM	0.2	0.2	0.2
09.	<b>Permissible limits for PM 10</b>	<b>µg/m3</b>	<b>100</b>	<b>100</b>	<b>100</b>
10.	Measured Concentration of PM 10	µg/m3	40	51	31
11.	<b>Permissible limits for PM 2.5</b>	<b>µg/m3</b>	<b>60</b>	<b>60</b>	<b>60</b>
12.	Measured Concentration of PM 2.5	µg/m3	22	30	25
13.	<b>Permissible limits for SO2</b>	<b>µg/m3</b>	<b>80</b>	<b>80</b>	<b>80</b>
14.	Measured Concentration of SO2	µg/m3	12.9	13.4	12.5
15.	<b>Permissible limits for NO2</b>	<b>µg/m3</b>	<b>80</b>	<b>80</b>	<b>80</b>
16.	Measured Concentration of NO2	µg/m3	21.4	22.0	21.9
17.	<b>Permissible limit for CO **</b>	<b>µg/m3</b>	<b>2000</b>	<b>2000</b>	<b>2000</b>
18.	Measured Concentration of CO	µg/m3	302	354	247

Instrument used : (1) Envirotech make 1 No. of RDS (APM - 460 BL) (2) 1 No. of Gaseous Sampling Kit (APM 411) (3) Ecotech make Attachment of 1 No. of PM 2.5 Sampler (AAS 127) (4) Ecotech make 2 Nos. of RDS (AAS 217 BL) (5) Gaseous sampling attachment (AAS 109)

(6) Ecotech make 2 Nos. of PM 2.5 sampler (AAS 127)

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M. K. K. Analyst



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Ref. No 362/12/2013-14

Date: 31/12/2013

## AMBIENT AIR QUALITY MONITORING REPORT

Name of company : Jindal Saw Limited,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5182\_2/4/6

Sr. No.	Particulars	Unit	NAAQMS - 1	NAAQMS - 2	NAAQMS - 3
01.	Location of Ambient	----	Main Gate (S)	Sinter Plant - 1 (NNW)	Nr. Workshop Spiral - II (W)
02.	Date of sampling	----	11/12/2013	11/12/2013	11/12/2013
03.	Time of sampling	----	9.10	9.20	9.35
04.	Duration of Sampling	Min.	1440.00	1440.00	1440.00
05.	Dominant Wind Direction (From)	-----	N	N	N
06.	Average Wind Speed	Km/Hr.	4 to 12	4 to 12	4 to 12
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.	<b>Permissible limits for PM 10</b>	<b>µg/m<sup>3</sup></b>	<b>100</b>	<b>100</b>	<b>100</b>
10.	Measured Concentration of PM 10	µg/m <sup>3</sup>	41	57	37
11.	<b>Permissible limits for PM 2.5</b>	<b>µg/m<sup>3</sup></b>	<b>60</b>	<b>60</b>	<b>60</b>
12.	Measured Concentration of PM 2.5	µg/m <sup>3</sup>	27	39	23
13.	<b>Permissible limits for SO<sub>2</sub></b>	<b>µg/m<sup>3</sup></b>	<b>80</b>	<b>80</b>	<b>80</b>
14.	Measured Concentration of SO <sub>2</sub>	µg/m <sup>3</sup>	11.7	13.0	12.2
15.	<b>Permissible limits for NO<sub>2</sub></b>	<b>µg/m<sup>3</sup></b>	<b>80</b>	<b>80</b>	<b>80</b>
16.	Measured Concentration of NO <sub>2</sub>	µg/m <sup>3</sup>	23.1	25.1	22.5
17.	<b>Permissible limit for CO **</b>	<b>µg/m<sup>3</sup></b>	<b>2000</b>	<b>2000</b>	<b>2000</b>
18.	Measured Concentration of CO	µg/m <sup>3</sup>	311	371	239

Instrument used : (1) Envirotech make 1 No. of RDS (APM - 460 BL) (2) 1 No. of Gaseous Sampling Kit (APM 411) (3) Ecotech make Attachment of 1 No. of PM 2.5 Sampler (AAS 127) (4) Ecotech make 2 Nos. of RDS (AAS 217 BL) (5) Gaseous sampling attachment (AAS 109) (6) Ecotech make 2 Nos. of PM 2.5 sampler (AAS 127)

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Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5182\_2/4/6

Sr. No.	Particulars	Unit	NAAQMS - 1	NAAQMS - 2	NAAQMS - 3
01.	Location of Ambient	----	Main Gate (S)	Sinter Plant - 1 (NNW)	Nr. Workshop Spiral - II (W)
02.	Date of sampling	----	12/12/2013	12/12/2013	12/12/2013
03.	Time of sampling	----	9.15	9.30	9.50
04.	Duration of Sampling	Min.	1440.00	1440.00	1440.00
05.	Dominant Wind Direction (From)	----	N	N	N
06.	Average Wind Speed	Km/Hr.	3 to 15	3 to 15	3 to 15
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.	<b>Permissible limits for PM 10</b>	<b>µg/m<sup>3</sup></b>	<b>100</b>	<b>100</b>	<b>100</b>
10.	Measured Concentration of PM 10	µg/m <sup>3</sup>	43	54	39
11.	<b>Permissible limits for PM 2.5</b>	<b>µg/m<sup>3</sup></b>	<b>60</b>	<b>60</b>	<b>60</b>
12.	Measured Concentration of PM 2.5	µg/m <sup>3</sup>	25	35	21
13.	<b>Permissible limits for SO<sub>2</sub></b>	<b>µg/m<sup>3</sup></b>	<b>80</b>	<b>80</b>	<b>80</b>
14.	Measured Concentration of SO <sub>2</sub>	µg/m <sup>3</sup>	11.4	12.9	12.5
15.	<b>Permissible limits for NO<sub>2</sub></b>	<b>µg/m<sup>3</sup></b>	<b>80</b>	<b>80</b>	<b>80</b>
16.	Measured Concentration of NO <sub>2</sub>	µg/m <sup>3</sup>	22.7	25.4	23.3
17.	<b>Permissible limit for CO **</b>	<b>µg/m<sup>3</sup></b>	<b>2000</b>	<b>2000</b>	<b>2000</b>
18.	Measured Concentration of CO	µg/m <sup>3</sup>	293	343	246

Instrument used : (1) Envirotech make 1 No. of RDS (APM - 460 BL) (2) 1 No. of Gaseous Sampling Kit (APM 411) (3) Ecotech make A:techment of 1 No. of PM 2.5 Sampler (AAS 127) (4) Ecotech make 2 Nos. of RDS (AAS 217 BL) (5) Gaseous sampling attachment (AAS 109) (6) Ecotech make 2 Nos. of PM 2.5 sampler (AAS 127)

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Sr. No.	Particulars	Unit	NAAQMS - 1	NAAQMS - 2	NAAQMS - 3
01.	Location of Ambient	----	Main Gate (S)	Sinter Plant - 1 (NNW)	Nr. Workshop Spiral - II (W)
02.	Date of sampling	----	18/12/2013	18/12/2013	18/12/2013
03.	Time of sampling	----	9.20	9.45	10.05
04.	Duration of Sampling	Min.	1440.00	1440.00	1440.00
05.	Dominant Wind Direction (From)	----	W	W	W
06.	Average Wind Speed	Km/Hr.	4 to 12	4 to 12	4 to 12
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.	<b>Permissible limits for PM 10</b>	<b>µg/m<sup>3</sup></b>	<b>100</b>	<b>100</b>	<b>100</b>
10.	Measured Concentration of PM 10	µg/m <sup>3</sup>	52	59	41
11.	<b>Permissible limits for PM 2.5</b>	<b>µg/m<sup>3</sup></b>	<b>60</b>	<b>60</b>	<b>60</b>
12.	Measured Concentration of PM 2.5	µg/m <sup>3</sup>	32	37	29
13.	<b>Permissible limits for SO<sub>2</sub></b>	<b>µg/m<sup>3</sup></b>	<b>80</b>	<b>80</b>	<b>80</b>
14.	Measured Concentration of SO <sub>2</sub>	µg/m <sup>3</sup>	13.2	14.1	12.4
15.	<b>Permissible limits for NO<sub>2</sub></b>	<b>µg/m<sup>3</sup></b>	<b>80</b>	<b>80</b>	<b>80</b>
16.	Measured Concentration of NO <sub>2</sub>	µg/m <sup>3</sup>	23.6	24.6	21.8
17.	<b>Permissible limit for CO **</b>	<b>µg/m<sup>3</sup></b>	<b>2000</b>	<b>2000</b>	<b>2000</b>
18.	Measured Concentration of CO	µg/m <sup>3</sup>	394	302	266

Instrument used : (1) Envirotech make 1 No. of RDS (APM - 460 BL) (2) 1 No. of Gaseous Sampling Kit (APM 411) (3) Ecotech make Attechr 1 No. of PM 2.5 Sampler (AAS 127) (4) Ecotech make 2 Nos. of RDS (AAS 217 BL) (5) Gaseous sampling attachment (AAS 109) (6) Ecotech make 2 Nos. of PM 2.5 sampler (AAS 127)

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Sr. No.	Particulars	Unit	NAAQMS - 1	NAAQMS - 2	NAAQMS - 3
01.	Location of Ambient	----	Main Gate (S)	Sinter Plant - 1 (NNW)	Nr. Workshop Spiral - II (W)
02.	Date of sampling	----	19/12/2013	19/12/2013	19/12/2013
03.	Time of sampling	----	9.30	9.50	10.10
04.	Duration of Sampling	Min.	1440.00	1440.00	1440.00
05.	Dominant Wind Direction (From)	----	ESE	ESE	ESE
06.	Average Wind Speed	Km/Hr.	3 to14	3 to14	3 to14
07.	Average flow rate during sampling	m3/Hr.	1.0	1.0	1.0
08.	Average flow rate for Gas sampling	LPM	0.2	0.2	0.2
09.	<b>Permissible limits for PM 10</b>	<b>µg/m3</b>	<b>100</b>	<b>100</b>	<b>100</b>
10.	Measured Concentration of PM 10	µg/m3	54	61	44
11.	<b>Permissible limits for PM 2.5</b>	<b>µg/m3</b>	<b>60</b>	<b>60</b>	<b>60</b>
12.	Measured Concentration of PM 2.5	µg/m3	36	41	30
13.	<b>Permissible limits for SO2</b>	<b>µg/m3</b>	<b>80</b>	<b>80</b>	<b>80</b>
14.	Measured Concentration of SO2	µg/m3	13.4	14.0	13.1
15.	<b>Permissible limits for NO2</b>	<b>µg/m3</b>	<b>80</b>	<b>80</b>	<b>80</b>
16.	Measured Concentration of NO2	µg/m3	22.5	24.2	22.1
17.	<b>Permissible limit for CO **</b>	<b>µg/m3</b>	<b>2000</b>	<b>2000</b>	<b>2000</b>
18.	Measured Concentration of CO	µg/m3	349	284	274

Instrument used : (1) Envirotech make 1 No. of RDS (APM - 460 BL) (2) 1 No. of Gaseous Sampling Kit (APM 411) (3) Ecotech make Attechmer 1 No. of PM 2.5 Sampler (AAS 127) (4) Ecotech make 2 Nos. of RDS (AAS 217 BL) (5) Gaseous sampling attachment (AAS 109) (6) Ecotech make 2 Nos. of PM 2.5 sampler (AAS 127)

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Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5182\_2/4/6

Sr. No.	Particulars	Unit	NAAQMS - 1	NAAQMS - 2	NAAQMS - 3
01.	Location of Ambient	----	Main Gate (S)	Sinter Plant - 1 (NNW)	Nr. Workshop Spiral - II (W)
02.	Date of sampling	----	23/12/2013	23/12/2013	23/12/2013
03.	Time of sampling	----	9.00	9.15	9.35
04.	Duration of Sampling	Min.	1440.00	1440.00	1440.00
05.	Dominant Wind Direction (From)	----	NNE	NNE	NNE
06.	Average Wind Speed	Km/Hr.	3 to 12	3 to 12	3 to 12
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.	<b>Permissible limits for PM 10</b>	<b>µg/m<sup>3</sup></b>	<b>100</b>	<b>100</b>	<b>100</b>
10.	Measured Concentration of PM 10	µg/m <sup>3</sup>	48	54	46
11.	<b>Permissible limits for PM 2.5</b>	<b>µg/m<sup>3</sup></b>	<b>60</b>	<b>60</b>	<b>60</b>
12.	Measured Concentration of PM 2.5	µg/m <sup>3</sup>	28	33	23
13.	<b>Permissible limits for SO<sub>2</sub></b>	<b>µg/m<sup>3</sup></b>	<b>80</b>	<b>80</b>	<b>80</b>
14.	Measured Concentration of SO <sub>2</sub>	µg/m <sup>3</sup>	12.8	13.6	12.6
15.	<b>Permissible limits for NO<sub>2</sub></b>	<b>µg/m<sup>3</sup></b>	<b>80</b>	<b>80</b>	<b>80</b>
16.	Measured Concentration of NO <sub>2</sub>	µg/m <sup>3</sup>	23.5	21.9	21.2
17.	<b>Permissible limit for CO **</b>	<b>µg/m<sup>3</sup></b>	<b>2000</b>	<b>2000</b>	<b>2000</b>
18.	Measured Concentration of CO	µg/m <sup>3</sup>	314	346	279

Instrument used : (1) Envirotech make 1 No. of RDS (APM - 460 BL) (2) 1 No. of Gaseous Sampling Kit (APM 411) (3) Ecotech make Attachment of 1 No. of PM 2.5 Sampler (AAS 127) (4) Ecotech make 2 Nos. of RDS (AAS 217 BL) (5) Gaseous sampling attachment (AAS 109) (6) Ecotech make 2 Nos. of PM 2.5 sampler (AAS 127)

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Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5182\_2/4/6

Sr. No.	Particulars	Unit	NAAQMS - 1	NAAQMS - 2	NAAQMS - 3
01.	Location of Ambient	----	Main Gate (S)	Sinter Plant - 1 (NNW)	Nr. Workshop Spiral - II (W)
02.	Date of sampling	----	24/12/2013	24/12/2013	24/12/2013
03.	Time of sampling	-----	9.10	9.25	9.45
04.	Duration of Sampling	Min.	1440.00	1440.00	1440.00
05.	Dominant Wind Direction (From)	-----	N	N	N
06.	Average Wind Speed	Km/Hr.	4 to 14	4 to 14	4 to 14
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.	<b>Permissible limits for PM 10</b>	<b>µg/m<sup>3</sup></b>	<b>100</b>	<b>100</b>	<b>100</b>
10.	Measured Concentration of PM 10	µg/m <sup>3</sup>	41	59	43
11.	<b>Permissible limits for PM 2.5</b>	<b>µg/m<sup>3</sup></b>	<b>60</b>	<b>60</b>	<b>60</b>
12.	Measured Concentration of PM 2.5	µg/m <sup>3</sup>	32	39	26
13.	<b>Permissible limits for SO<sub>2</sub></b>	<b>µg/m<sup>3</sup></b>	<b>80</b>	<b>80</b>	<b>80</b>
14.	Measured Concentration of SO <sub>2</sub>	µg/m <sup>3</sup>	13.9	13.7	12.8
15.	<b>Permissible limits for NO<sub>2</sub></b>	<b>µg/m<sup>3</sup></b>	<b>80</b>	<b>80</b>	<b>80</b>
16.	Measured Concentration of NO <sub>2</sub>	µg/m <sup>3</sup>	24.2	21.0	21.4
17.	<b>Permissible limit for CO **</b>	<b>µg/m<sup>3</sup></b>	<b>2000</b>	<b>2000</b>	<b>2000</b>
18.	Measured Concentration of CO	µg/m <sup>3</sup>	303	364	288

Instrument used : (1) Envirotech make 1 No. of RDS (APM - 460 BL) (2) 1 No. of Gaseous Sampling Kit (APM 411) (3) Ecotech make Attachment of 1 No. of PM 2.5 Sampler (AAS 127) (4) Ecotech make 2 Nos. of RDS (AAS 217 BL) (5) Gaseous sampling attachment (AAS 109) (6) Ecotech make 2 Nos. of PM 2.5 sampler (AAS 127)

Calibration due on: (1) 05/05/2014 (2) 05/05/2014 (3) 04/05/2014 (4) 06/05/2014 (5) 05/05/2014 (6) 06/05/2014

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Date: 31/12/2013

Ref. No. 368/12/2013-14

### AMBIENT AIR QUALITY MONITORING REPORT

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5182\_2/4/6

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	----	10/12/2013	10/12/2013	08/12/2013	10/12/2013
03.	Time of sampling	-----	9.10	9.25	9.20	9.40
04.	Duration of Sampling	Min.	1440.00	1440.00	1440.00	1440.00
05.	Dominant Wind Direction (From)	-----	N	N	N	N
06.	Average Wind Speed	Km/Hr.	2 to 12	3 to 14	2 to 12	3 to 14
07.	Average flow rate during sampling	m3/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.	<b>Permissible limits for PM 10</b>	<b>µg/m3</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
10.	Measured Concentration of PM 10	µg/m3	39	46	64	58
11.	<b>Permissible limits for PM 2.5</b>	<b>µg/m3</b>	<b>60</b>	<b>60</b>	<b>60</b>	<b>60</b>
12.	Measured Concentration of PM 2.5	µg/m3	24	27	37	30
13.	<b>Permissible limits for SO2</b>	<b>µg/m3</b>	<b>80</b>	<b>80</b>	<b>80</b>	<b>80</b>
14.	Measured Concentration of SO2	µg/m3	11.8	12.6	13.3	12.8
15.	<b>Permissible limits for NO2</b>	<b>µg/m3</b>	<b>80</b>	<b>80</b>	<b>80</b>	<b>80</b>
16.	Measured Concentration of NO2	µg/m3	16.4	17.1	21.8	19.6
17.	<b>Permissible limit for CO **</b>	<b>µg/m3</b>	<b>2000</b>	<b>2000</b>	<b>2000</b>	<b>2000</b>
18.	Measured Concentration of CO	µg/m3	191	252	271	294

Instrument used : (1) Envirotech make 2 Nos. RDS (APM - 460 BL) (2) 2 Nos. Gaseous Sampling Kit (APM 411)

(3) Ecotech make Attachment of 2 Nos. PM 2.5 Sampler (AAS 127)

Calibration due on: (1) 05/05/2014 (2) 05/05/2014 (3) 04/05/2014

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Date: 31/12/2013

Ref. No. 369/12/2013-14

### AMBIENT AIR QUALITY MONITORING REPORT

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5182\_2/4/6

Sr. No.	Particulars	Unit	AAQM - 5 (NE)	AAQM - 6 (SE)	AAQM - 7 (SSE)	AAQM - 8 (E)
01.	Location of Ambient	---	Labour Colony	New Colony (Shopping Centre )	Admin Building	Weigh bridge
02.	Date of sampling	---	08/12/2013	10/12/2013	08/12/2013	08/12/2013
03.	Time of sampling	----	9.45	10.00	10.05	10.20
04.	Duration of Sampling	Min.	1440.00	1440.00	1440.00	1440.00
05.	Dominant Wind Direction (From)	----	N	N	N	<b>N</b>
06.	Average Wind Speed	Km/Hr.	2 to 12	3 to 14	2 to 12	3 to 14
07.	Average flow rate during sampling	m3/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.	<b>Permissible limits for PM 10</b>	<b>µg/m3</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
12.	Measured Concentration of PM 10	µg/m3	50	44	40	67
11.	<b>Permissible limits for PM 2.5</b>	<b>µg/m3</b>	<b>60</b>	<b>60</b>	<b>60</b>	<b>60</b>
10.	Measured Concentration of PM 2.5	µg/m3	25	18	28	32
13.	<b>Permissible limits for SOx</b>	<b>µg/m3</b>	<b>80</b>	<b>80</b>	<b>80</b>	<b>80</b>
14.	Measured Concentration of SOx	µg/m3	11.4	12.1	11.1	14.0
15.	<b>Permissible limits for Nox</b>	<b>µg/m3</b>	<b>80</b>	<b>80</b>	<b>80</b>	<b>80</b>
	Measured Concentration of NOx	µg/m3	18.3	20.3	19.3	22.4
17.	<b>Permissible limit for CO **</b>	<b>µg/m3</b>	<b>2000</b>	<b>2000</b>	<b>2000</b>	<b>2000</b>
18.	Measured Concentration of	µg/m3	307	201	299	316

Instrument used : (1) Envirotech make 2 Nos. RDS (APM - 460 BL) (2) 2 Nos. Gaseous Sampling Kit (APM 411)  
(3) Ecotech make Attachment of 2 Nos. PM 2.5 Sampler (AAS 127)

Calibration due on: (1) 05/05/2014 (2) 05/05/2014 (3) 04/05/2014

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Ref. No. 370/12/2013-14

Date: 31/12/2013

### FUGITIVE EMISSION MONITORING REPORT

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5182\_2/4/6

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	----	09/12/2013	09/12/2013	09/12/2013
03.	Time of sampling	----	9.25	9.45	10.00
04.	Duration of Sampling	Hr.	8.00	8.00	8.00
05.	Dominant Wind Direction (From)	----	N	N	N
06.	Average Wind Speed	Km/Hr.	5 to 15	5 to 15	4 to 12
07.	Average flow rate during sampling	m3/Hr.	1.0	1.0	1.0
08.	Average flow rate for Gas sampling	LPM	0.2	0.2	0.2
09.	<b>Permissible limits for PM 10</b>	<b>µg/m3</b>	<b>3000</b>	<b>3000</b>	<b>3000</b>
10.	Measured Concentration of PM 10	µg/m3	2129	2447	2214
11.	<b>Permissible limits for SO2</b>	<b>µg/m3</b>	<b>150</b>	<b>150</b>	<b>150</b>
12.	Measured Concentration of SO2	µg/m3	14.8	15.9	15.2
13.	<b>Permissible limits for NO2</b>	<b>µg/m3</b>	<b>120</b>	<b>120</b>	<b>120</b>
14.	Measured Concentration of NO2	µg/m3	21.7	23.4	22.5
15.	<b>Permissible limit for CO **</b>	<b>µg/m3</b>	<b>5000</b>	<b>5000</b>	<b>5000</b>
16.	Measured Concentration of CO	µg/m3	264	386	219

Instrument used : (1) Envirotech make 2 Nos. RDS (APM - 460 BL) (2) 2 Nos. Gaseous Sampling Kit (APM 411)

(3) Ecotech make Attachment of 2 Nos. PM 2.5 Sampler (AAS 127)

Calibration due on: (1) 05/05/2014 (2) 05/05/2014 (3) 04/05/2014

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Ref. No. 371/12/2013-14

Date: 31/12/2013

### FUGITIVE EMISSION MONITORING REPORT

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5182\_2/4/6

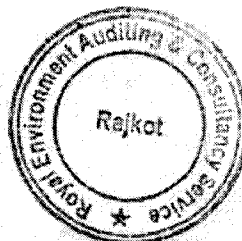
Sr. No.	Particulars	Unit	A - 4	A - 5	A - 6
01.	Location of Ambient	---	Sinter 2 Ground Hopper	DISP "CCM" Area	Sinter 1 Main to PMD
02.	Date of sampling	---	22/12/2013	22/12/2013	22/12/2013
03.	Time of sampling	----	9.30	9.55	10.20
04.	Duration of Sampling	Hr.	8.00	8.00	8.00
05.	Dominant Wind Direction (From)	----	N	N	N
06.	Average Wind Speed	Km/Hr.	4 to 12	4 to 16	4 to 16
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>	1714	1348	2136
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>	13.5	14.6	13.9
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>	21.7	23.6	22.3
15.	Permissible limit for CO **	µg/m <sup>3</sup>	5000	5000	5000
16.	Measured Concentration of CO	µg/m <sup>3</sup>	248	366	279

Instrument used : (1) Envirotech make 2 Nos. RDS (APM - 460 BL) (2) 2 Nos. Gaseous Sampling Kit (APM 411)

(3) Ecotech make Attachment of 2 Nos. PM 2.5 Sampler (AAS 127)

Calibration due on: (1) 05/05/2014 (2) 05/05/2014 (3) 04/05/2014

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Ref. No. 372/12/2013-14

Date: 31/12/2013

### Bag Filter Efficiency Report

#### APCM Inlet

Name of company : Jindal Saw Limited,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255\_1/2/3/7

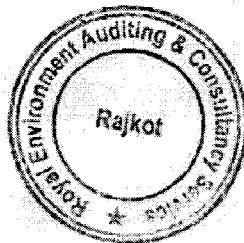
Sr. No.	Particulars	Unit	Stack No. 1	Stack No. 2	Stack No. 3	Stack No. 4	Stack No. 5	Stack No. 6
01	Date of Sampling	---	07/12/2013	11/12/2013	10/12/2013	10/12/2013	11/12/2013	12/12/2013
02	Attached to		Zinc Coating -I	Common stack Mg Converter- I & II	Core Cleaning & Dusting-I	Barrel Grinding -I	Barrel Grinding -II	Sand Reclamation
03	Stack Height	Meter	30	30	30	30	30	32
04	Stack Diameter	Meter	0.488	0.564	0.588	0.584	0.584	---
05	Stack Temperature	°C	41	78	45	48	43	45
06	Ambient Temperature	°C	29	31	31	30	30	31
07	Average Velocity of Flue Gases	M/Sec.	15.6	18.2	14.3	15.5	14.7	12.9
08	IsoKinetic Flowrate for Sampling	LPM	28	29	25	27	28	23
09	Inlet	mg	1794	1994	1708	2120	1975	1510
10	Outlet	mg	16	47	31	34	46	32
11	Efficiency	%	99.11	97.64	98.19	98.40	97.87	97.88

Note : Minimum Detectable Limit of SO<sub>2</sub> & Nox is 0.1 and 0.01 ppm respectively.

Instrument Used : 2 Nos of Stack Monitoring Kit - Vayubodhan make - VSSI

Both Stack kit have calibration Due on : 05/05/2014

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Ref. No. : 373/12/2013-14

Date: 31/12/2013

### Bag Filter Efficiency Report

#### APCM Inlet

Name of company : Jindal Saw Limited,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255\_1/2/3/7

Sr. No.	Particulars	Unit	Stack No. 7	Stack No. 8	Stack No. 9	Stack No. 10	Stack No. 11	Stack No. 12	Stack No. 13
01	Date of Sampling	---	07/12/2013	07/12/2013	10/12/2013	12/12/2013	10/12/2013	21/12/2013	09/12/2013
02	Attached to	---	Zinc Coating - II	Zinc Coating-III	Zinc Coating -IV & V	Mg Converter - III	Core Cleaning & Dusting-II	Barrel Grinding-III	Barrel Grinding- IV & V
03	Stack Height	Meter	30	30	30	30	30	30	25
04	Stack Diameter	Meter	----	----	----	0.488	0.588	0.584	0.488
05	Stack Temperature	°C	46	53	50	57	46	57	54
06	Ambient Temperature	°C	30	31	31	31	30	31	31
07	Average Velocity of Flue Gases	M/Sec.	14.3	13.6	10.5	11.7	13.6	14.2	12.9
08	IsoKinetic Flowrate for Sampling	LPM	25	23	18	20	24	24	22
09	Inlet	mg	1638	1721	1605	1819	1901	1445	1642
10	Outlet	mg	17	18	15	45	40	43	46
11	Efficiency	%	98.96	98.95	99.07	97.53	97.90	97.02	97.20

Note : Minimum Detectable Limit of SO<sub>2</sub> & Nox is 0.1 and 0.01 ppm respectively.

Instrument Used : 2 Nos of Stack Monitoring Kit - Vayubodhan make - VSS I

Both Stack kit have calibration Due on : 05/05/2014

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Ref No 374/12/2013-14

Date: 31/12/2013

### STACK EMISSION MONITORING RESULTS

#### Sinter Plant-I

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra. Dist. Kutch

Test Method : As per IS Standards - 11255\_1/2/3/7

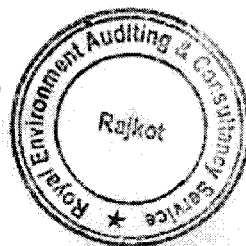
Sr. No.	Particulars	Unit	Stack No. 1	Stack No. 2	Stack No. 3	Stack No. 4	Stack No. 5	Stack No. 6
01	Date of Sampling	---	11/12/2013	19/12/2013	19/12/2013	Not Running During Visit	23/12/2013	19/12/2013
02	Time of sampling	---	10.30	10.45	11.50		14.30	14.15
03	Stack Attached to	---	Sinter Furnace	Discharge End	Fuel & Flux Crusher and Screening	Fuel & Flux Crushing House	Secondary Mixture House	Primary Mixture House
04	Air Pollution Control Measures	---	ESP	ESP	Bag Filter	Bag Filter	---	---
05	Stack Height	Meter	50	32.8	32.8	27.05	36.08	19.75
06	Stack Diameter	Meter	2.0	1.30	1.40	0.70	1.25	1.25
07	Stack Temperature	°C	151	138	54	---	65	86
08	Ambient Temperature	°C	30	30	31	---	31	31
09	Average Velocity of Flue Gases	M/Sec.	6.7	15.6	6.2	---	4.8	5.5
10	Isokinetic flow rate for P.M. Sampling	LPM	11	21	11	---	18	19
11	Gaseous Sampling Flow Rate	LPM	2.0	---	---	---	---	---
12	Permissible limits for PM	mg/Nm <sup>3</sup>	150	150	150	150	150	150
13	Measured Concentration of PM.	mg/Nm <sup>3</sup>	97	43	58.00	---	31	64
14	Permissible limits for SO <sub>2</sub>	ppm	100	NA	NA	NA	NA	NA
15	Measured Concentration of SO <sub>2</sub>	ppm	16.1	---	---	---	---	---
16	Permissible limits for NO <sub>x</sub>	ppm	50	NA	NA	NA	NA	NA
17	Measured Concentration of NO <sub>x</sub>	ppm	12.3	---	---	---	---	---

Note : Minimum Detectable Limit of SO<sub>2</sub> & Nox is 0.1 and 0.01 ppm respectively.

Instrument Used : 2 Nos of Stack Monitoring Kit - Vayubodhan make - VSS I

Both Stack kit have calibration Due on : 05/05/2014

Royal Environment Auditing & Consultancy Service



Analyst

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Ref No. 375/12/2013-14

Date: 31/12/2013

### STACK EMISSION MONITORING RESULTS Sinter Plant- II

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255\_1/2/3/7

Sr. No.	Particulars	Unit	Stack No. 1	Stack No. 2	Stack No. 3	Stack No. 4	Stack No. 5	Stack No. 8	Stack No. 7
01	Date of Sampling	---	12/12/2013	20/12/2013	23/12/2013	20/12/2013	20/12/2013	23/12/2013	
02	Time of sampling	Hr.	10.20	10.30	10.45	11.50	14.15	12.10	Not Running During Visit
03	Stack Attached to	---	Sinter Furnace	Discharging End of sinter de-dusting system	Fuel crushing de-duster system (Flux)	Primary Mixer De-duster system	Secondary Mixer De-duster system	Fuel Screening deduster System (Flux Screening Stack)	Fuel crushing de-duster system (Fuel)
04	Air Pollution Control Measures	---	ESP	ESP	Dust Collector	Dust Collector	Dust Collector	Dust Collector	Dust Collector
05	Stack Height	Meter	50	50	30	30	30	30	30
06	Stack Diameter	Meter	2	1.3	0.7	1.25	1.25	0.7	0.7
07	Stack Temperature	°C	145	114	41	79	51	43	---
08	Ambient Temperature	°C	30	30	30	31	31	31	---
09	Average Velocity of Flue Gases	M/Sec.	10.5	11.4	6.8	5.1	4.1	4.6	---
10	Isokinetic flow rate for P.M. Sampling	LPM	14	16	12	18	16	18	---
11	Gaseous Sampling Flow Rate	LPM	2.0	---	---	---	---	---	---
12	Permissible limits for PM	mg/Nm <sup>3</sup>	150	150	150	150	150	150	150
13	Measured Concentration of PM	mg/Nm <sup>3</sup>	43	34	29	59	40	36	---
14	Permissible limits for SO <sub>2</sub>	ppm	100	NA	NA	NA	NA	NA	NA
15	Measured Concentration of SO <sub>2</sub>	ppm	13.4	---	---	---	---	---	---
16	Permissible limits for NO <sub>x</sub>	ppm	50	NA	NA	NA	NA	NA	NA
17	Measured Concentration of NO <sub>x</sub>	ppm	21.7	---	---	---	---	---	---

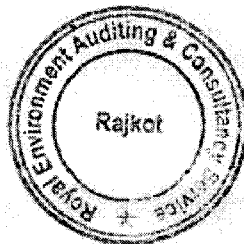
Note : Minimum Detectable Limit of SO<sub>2</sub> & Nox is 0.1 and 0.01 ppm respectively.

Instrument Used : 2 Nos of Stack Monitoring Kit - Vayubodhan make - VSS I

Both Stack kit have calibration Due on : 05/05/2014

NA= Not Applicable

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Analyst

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Ref. No. 376/12/2013-14

Date: 31/12/2013

### STACK EMISSION MONITORING RESULTS

#### BLAST FURNACE-1 & PCI

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255\_1/2/3/7

Sr. No.	Particulars	Unit	Stack No. 1	Stack No. 2	Stack No. 3	Stack No. 4	Stack No. 5
01	Date of Sampling	---	13/12/2013	13/12/2013	13/12/2013	24/12/2013	24/12/2013
02	Time of sampling	Hr.	9.45	10.30	11.10	10.00	11.10
03	Stack Attached to	---	Boiler - I	Boiler - II	Dedusting System	Stove Stack	Coal Pulverization
04	Air Pollution Control Measures	---	---	---	Bag Filter	----	Bag Filter
05	Stack Height	Meter	45	45	35.0	50.0	32.0
06	Stack Diameter	Meter	1.380	1.380	1.484	2.250	---
07	Stack Temperature	°C	169	157	70	315	41
08	Ambient Temperature	°C	29	30	31	30	31
09	Average Velocity of Flue Gases	M/Sec.	5.2	4.6	5.8	5.4	6.10
10	Isokinetic flow rate for P.M. Sampling	LPM	15	14	21	12	25
11	Gaseous Sampling Flow Rate	LPM	2.0	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>	11	9	41	8	26.00
14	Permissible limits for SO <sub>2</sub>	mg/Nm <sup>3</sup>	40	40	40	40	100 (ppm)
15	Measured Concentration of SO <sub>2</sub>	mg/Nm <sup>3</sup>	4.8	5	N.D.	1.20	N.D.
16	Permissible limits for NO <sub>x</sub>	mg/Nm <sup>3</sup>	25	25	25	25	50 (ppm)
17	Measured Concentration of Nox	mg/Nm <sup>3</sup>	7.8	8.1	N.D.	5.9	N.D.

Note : Minimum Detectable Limit of SO<sub>2</sub> & Nox is 0.1 and 0.01 ppm respectively.

Instrument Used : Stack Monitoring Kit - Vayubodhan make - VSS I

Both Stack kit have calibration Due on : 05/05/2014

Royal Environment Auditing & Consultancy Service

(Signature)  
Analyst



# Royal

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Ref. No 377/12/2013-14

Date: 31/12/2013

### STACK EMISSION MONITORING RESULTS

#### BLAST FURNACE-2

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255\_1/2/3/7

Sr. No. Particulars	Unit	Stack No. 1	Stack No. 2	Stack No. 3	Stack No. 4
01 Date of Sampling	---	24/12/2013	23/12/2013	24/12/2013	23/12/2013
02 Time of sampling	Hr.	14.15	15.20	15.30	15.45
03 Stack Attached to	---	Dedusting System	Stove Stack	Iron Ore fine & Dust Collecting System	Coke fine building dust collecting system
04 Air Pollution Control Measures	---	Bag Filter	---	Bag Filter	Bag Filter
05 Stack Height	Meter	40.0	65.0	30.0	30.0
06 Stack Diameter	Meter	1.484	2.250	0.550	---
07 Stack Temperature	°C	54	319	49	47
08 Ambient Temperature	°C	31	31	31	29
09 Average Velocity of Flue Gases	M/Sec.	7.1	5.9	9.4	8.7
10 Isokinetic flow rate for P.M. Sampling	LPM	27	13	16	15
11 Gaseous Sampling Flow Rate	LPM	---	---	---	---
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	7	49	41
14 Permissible limits for SO <sub>2</sub>	mg/Nm <sup>3</sup>	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
17 Measured Concentration of NO <sub>x</sub>	mg/Nm <sup>3</sup>	---	---	---	---

Note : Minimum Detectable Limit of SO<sub>2</sub> & Nox is 0.1 and 0.01 ppm respectively.

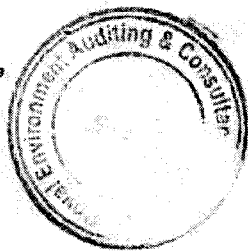
Instrument Used : Stack Monitoring Kit - Vayubodhan make - VSS I

Both Stack kit have calibration Due on : 05/05/2014

\*\*NA=Not Applicable

Royal Environment Auditing & Consultancy Service

*[Handwritten Signature]*



Analyst

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Ref. No. : 378/12/2013-14

Date: 31/12/2013

### STACK EMISSION MONITORING RESULTS

#### Captive Power Plant

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255\_1/2/3/7

Sr. No.	Particulars	Unit	Stack No. 6	Stack No. 7	Stack No. 8	Stack No. 9
01	Date of Sampling	---	Not running during visit	Not running during visit	21/12/2013	21/12/2013
02	Time of sampling	Hr.			10.00	11.15
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	1.984	1.484	1.484	0.980
07	Stack Temperature	°C	---	---	153	137
08	Ambient Temperature	°C	---	---	31	31
09	Average Velocity of Flue Gases	M/Sec.	---	---	9.1	7.8
10	Isokinetic flow rate for P.M. Sampling	LPM	---	---	27	24
11	Gaseous Sampling Flow Rate	LPM	---	---	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>	---	---	51	46
14	Permissible limits for SO <sub>2</sub>	ppm	100	100	100.0	100
15	Measured Concentration of SO <sub>2</sub>	ppm	---	---	24.1	22.3
16	Permissible limits for Nox	ppm	50	50	50.0	50
17	Measured Concentration of Nox	ppm	---	---	17.4	16.2

Note : Minimum Detectable Limit of SO<sub>2</sub> & Nox is 0.1 and 0.01 ppm respectively.

Instrument Used : Stack Monitoring Kit - Vayubodhan make - VSS I

Both Stack kit have calibration Due on : 05/05/2014

Royal Environment Auditing & Consultancy Service

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Analyst



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Ref. No. 379/12/2013-14

Date: 31/12/2013

### STACK EMISSION MONITORING RESULTS

#### Pipe Complex

Name of company : Jindal Saw Limited,  
 Village: Samreghogna,  
 Tal. : Mundra, Dist. Kutch

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

Sr. No.	Particulars	Unit	Stack No. 1	Stack No. 2	Stack No. 3	Stack No. 4	Stack No. 5	Stack No. 6	Stack No. 7
01	Date of Sampling	---	---	---	---	---	22/12/2013	10/12/2013	11/12/2013
02	Time of sampling	Hr	Not Running During Visit	Not Running During Visit	Not Running During Visit	Not Running During Visit	11.15	10.00	11.15
03	Stack Attached to	---	Shot Blasting - I	Shot Blasting - II	Shot Blasting - III	Bitumin Drying Oven - I	Common stack Bitumin Drying Oven - II & Boiler	Barrel Grinding - I	Barrel Grinding - II
04	Air Pollution Control Measures	---	Bag Filter	Bag Filter	Bag Filter	---	---	Bag Filter	Bag Filter
05	Stack Height	Meter	10.0	10.0	10.0	32.0	32.0	30	30
06	Stack Diameter	Meter	0.41	0.41	1.125	1.375	1.375	0.564	0.594
07	Stack Temperature	°C	---	---	---	---	157	49	43
08	Ambient Temperature	°C	---	---	---	---	31	29	30
09	Average Velocity of Flue Gases	M/Sec.	---	---	---	---	10.8	13.7	13.0
10	Isokinetic flow rate for P.M. Sampling	LPM	---	---	---	---	14	24	23
11	Gaseous Sampling Flow Rate	LPM	---	---	---	---	2.0	2.0	2.0
12	Permissible limits for PM	mg/Nm <sup>3</sup>	150	150	150	150	150	150	150
13	Measured Concentration of PM	mg/Nm <sup>3</sup>	---	---	---	---	73	47	44
14	Permissible limits for SO <sub>2</sub>	mg/Nm <sup>3</sup>	40	40	40	100 ppm	100 ppm	40	40
15	Measured Concentration of SO <sub>2</sub>	mg/Nm <sup>3</sup>	---	---	---	---	0.3	---	---
16	Permissible limits for NO <sub>x</sub>	mg/Nm <sup>3</sup>	25	25	25	50 ppm	50 ppm	25	25
17	Measured Concentration of NO <sub>x</sub>	mg/Nm <sup>3</sup>	---	---	---	---	0.5	---	---

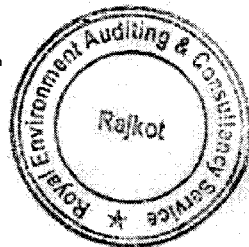
Note : Minimum Detectable Limit of SO<sub>2</sub> & NO<sub>x</sub> is 0.1 and 0.01 ppm respectively.

Instrument Used : 2 Nos of Stack Monitoring Kit - Vayubodhan make - VSS I

Both Stack kit have calibration Due on : 05/05/2014

Royal Environment Auditing & Consultancy Service

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Analyst

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Ref. No. 380/12/2013-14

Date: 31/12/2013

### STACK EMISSION MONITORING RESULTS

#### Pipe Copmplex

Name of company : Jindal Saw Limited,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255\_1/2/3/7

Sr. No.	Particulars	Unit	Stack No. 8	Stack No. 9	Stack No. 10	Stack No. 11	Stack No. 12	Stack No. 13
01	Date of Sampling	---	11/12/2013	12/12/2013	07/12/2013	07/12/2013	07/12/2013	10/12/2013
02	Time of sampling	Hr.	11.20	11.10	10.00	11.25	14.30	11.00
03	Stack Attached to	---	Common stack Mg Converter- I&II	Mg Converter -III	Zn Coating - I	Zn Coating - II	Zn Coating - III	Zn Coating - IV & V
04	Air Pollution Control Measures	---	Bag Filter	Bag Filter	Cyclone Seprater & Bag Filter	Cyclone Seprater & Bag Filter	Cyclone Seprater & Bag Filter	Cyclone Seprater & Bag Filter
05	Stack Height	Meter	30	30	30	30	30	30
06	Stack Diameter	Meter	0.488	0.488	0.584	0.584	0.584	0.850
07	Stack Temperature	°C	61	51	43	47	40	45
08	Ambient Temperature	°C	30	31	29	30	31	31
09	Average Velocity of Flue Gases	M/Sec.	15.9	12.2	13.5	12.4	11.8	9.7
10	Isokinetic flow rate for P.M. Sampling	LPM	27	21	24	22	21	17
11	Gaseous Sampling Flow Rate	LPM	2.0	2.0	---	---	---	---
12	Permissible limits for PM	mg/Nm <sup>3</sup>	150	150	20 (Zn)	20 (Zn)	20 (Zn)	20 (Zn)
13	Measured Concentration of PM	mg/Nm <sup>3</sup>	70	49	10 (Zn)	16 (Zn)	12 (Zn)	17 (Zn)
14	Permissible limits for SO <sub>2</sub>	mg/Nm <sup>3</sup>	40	40	NA	NA	NA	NA
15	Measured Concentration of SO <sub>2</sub>	mg/Nm <sup>3</sup>	N.D.	N.D.	---	---	---	---
16	Permissible limits for Nox	mg/Nm <sup>3</sup>	25	25	NA	NA	NA	NA
17	Measured Concentration of Nox	mg/Nm <sup>3</sup>	6.4	5.2	---	---	---	---

Note : Minimum Detectable Limit of SO<sub>2</sub> & Nox is 0.1 and 0.01 ppm respectively.

N.D= Not Detectable

Instrument Used : 2 Nos of Stack Monitoring Kit - Vayubodhan make - VSS I

Both Stack kit have calibration Due on : 05/05/2014

Royal Environment Auditing & Consultancy Service

*metno7*  
Analyst



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Ref. No. : 381/12/2013-14

Date: 31/12/2013

### STACK EMISSION MONITORING RESULTS

#### Pipe Complex

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255\_1/2/3/7

Sr. No.	Particulars	Unit	Stack No. 14	Stack No. 15	Stack No. 16	Stack No. 17	Stack No. 18	Stack No. 19
01	Date of Sampling	---	10/12/2013	10/12/2013	22/12/2013	22/12/2013	22/12/2013	22/12/2013
02	Time of sampling	Hr.	14.30	15.45	12.30	14.00	15.15	16.10
03	Stack Attached to	---	Core Cleaning & Dusting-I	Core Cleaning & Dusting-II	Core Shop-I	Core Shop-II	Core Shop-III	Core Shop-IV
04	Air Pollution Control Measures	---	Bag Filter	Bag Filter	---	---	---	---
05	Stack Height	Meter	30	30	30	30	30	30
06	Stack Diameter	Meter	0.588	0.59	0.584	0.584	0.584	0.584
07	Stack Temperature	°C	47	43	35	37	40	36
08	Ambient Temperature	°C	31	31	30	31	31	30
09	Average Velocity of Flue Gases	M/Sec.	12.6	12.9	5.1	4.9	4.3	5.3
10	Isokinetic flow rate for P.M. Sampling	LPM	22	23	21	20	17	22
11	Gaseous Sampling Flow Rate	LPM	2.0	2.0	2.0	2.0	2.0	2.0
12	Permissible limits for PM	mg/Nm <sup>3</sup>	150	150	150	150	150	150
13	Measured Concentration of PM	mg/Nm <sup>3</sup>	48	41	36	29	48	59
14	Permissible limits for SO <sub>2</sub>	mg/Nm <sup>3</sup>	40	40	40	40	40	40
15	Measured Concentration of SO <sub>2</sub>	mg/Nm <sup>3</sup>	4.2	3.9	N.D.	N.D.	N.D.	N.D.
16	Permissible limits for Nox	mg/Nm <sup>3</sup>	25	25	25	25	25	25
17	Measured Concentration of Nox	mg/Nm <sup>3</sup>	8.4	7.1	N.D.	N.D.	N.D.	N.D.

Note : Minimum Detectable Limit of SO<sub>2</sub> & Nox is 0.1 and 0.01 ppm respectively.

N.D= Not Detectable

Instrument Used : 2 Nos of Stack Monitoring Kit - Vayubodhan make - VSS I

Both Stack kit have calibration Due on : 05/05/2014

Royal Environment Auditing & Consultancy Service

*Munshi*  
Analyst



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Ref. No : 382/12/2013-14

Date: 31/12/2013

### STACK EMISSION MONITORING RESULTS

#### Pipe Complex

Name of company : Jindal Saw Limited,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255\_1/2/3/7

Sr. No.	Particulars	Unit	Stack No. 20	Stack No. 21	Stack No. 22	Stack No. 23	Stack No. 24	Stack No. 25
01	Date of Sampling	---	25/12/2013	25/12/2013	25/12/2013	08/12/2013	09/12/2013	25/12/2013
02	Time of sampling	Hr.	9.45	10.50	12.15	15.20	10.30	14.30
03	Stack Attached to	---	Annealing Furnace - I	Annealing Furnace - II	Annealing Furnace - III	Barrel Grinding-III	Barrel Grinding -IV&V	Sand Reclamation
04	Air Pollution Control Measures	---	---	---	---	Bag Filter	Bag Filter	Bag Filter
05	Stack Height	Meter	32	32	32	30	25	32
06	Stack Diameter	Meter	1.375	1.375	1.375	0.488	0.488	0.885
07	Stack Temperature	°C	118	158	167	56	43	68
08	Ambient Temperature	°C	30	31	31	31	29	31
09	Average Velocity of Flue Gases	M/Sec.	6.7	8.4	8.9	13.7	12.6	10.7
10	Isokinetic flow rate for P.M. Sampling	LPM	22	25	26	24	23	18
11	Gaseous Sampling Flow Rate	LPM	2.0	2.0	2.0	2.0	2.0	2.0
12	Permissible limits for PM	mg/Nm3	150	150	150	150	150	150
13	Measured Concentration of PM.	mg/Nm3	42	33	48	54	49	54
14	Permissible limits for SO2	mg/Nm3	100 (PPM)	100 (PPM)	100 (ppm)	40	40	40
15	Measured Concentration of SO2	mg/Nm3	4.1(PPM)	4.8(PPM)	5.7(PPM)	4.6	2.7	N.D.
16	Permissible limits for Nox	mg/Nm3	50 (PPM)	50 (PPM)	50 (PPM)	25	25	25
17	Measured Concentration of Nox	mg/Nm3	5.4 (PPM)	6.2 (PPM)	6.4 (PPM)	5.8	5.3	N.D.

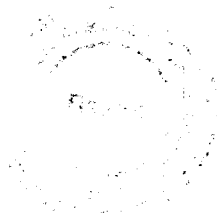
Note : Minimum Detectable Limit of SO2 & Nox is 0.1 and 0.01 ppm respectively.

N.D= Not Detectable

Instrument Used : 2 Nos of Stack Monitoring Kit - Vayubodhan make - VSS I

Both Stack kit have calibration Due on : 05/05/2014

Royal Environment Auditing & Consultancy Service



*mevnoj*  
Analyst



# Royal

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Ref. No. : 383/12/2013-14

Date: 31/12/2013

### STACK EMISSION MONITORING RESULTS

#### Small Dia Ductile Iron Pipe Complex

Name of company : Jindal Saw Limited,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255\_1/2/3/7

Sr. No.	Particulars	Unit	Stack No. 1	Stack No. 2	Stack No. 3	Stack No. 4	Stack No. 5	Stack No. 6
01	Date of Sampling	---	25/12/2013	25/12/2013	09/12/2013	25/12/2013	12/12/2013	09/12/2013
02	Time of sampling	Hr.	15.30	16.45	11.40	Not Running During Visit	15.45	14.20
03	Stack Attached to	---	Annealing Furnace - I	Annealing Furnace - I	Magnesium Treatment	Socket Cleaning	Zinc Coating	Tri- Grinding Section
04	Air Pollution Control Measures	---	---	---	Bag Filter	Bag Filter	Bag Filter	Bag Filter
05	Stack Height	Meter	45	45	30	30	30	30
06	Stack Diameter	Meter	---	---	---	---	---	---
07	Stack Temperature	°C	124	139	43	---	40	38
08	Ambient Temperature	°C	31	31	30	---	31	31
09	Average Velocity of Flue Gases	M/Sec.	7.7	7.1	4.7	---	5.8	7.6
10	Isokinetic flow rate for P.M. Sampling	LPM	25	22	19	---	11	14
11	Gaseous Sampling Flow Rate	LPM	2.0	2.0	---	---	---	---
12	Permissible limits for PM	mg/Nm <sup>3</sup>	50	50	50	50	50	50
13	Measured Concentration of PM.	mg/Nm <sup>3</sup>	23	29	27	---	13 (Zn)	31
14	Permissible limits for SO <sub>2</sub>	PPM	100	100	NA	NA	NA	NA
15	Measured Concentration of SO <sub>2</sub>	PPM	14.8	15.3	---	---	---	---
16	Permissible limits for Nox	PPM	50	50	NA	NA	NA	NA
17	Measured Concentration of Nox	PPM	5.4	6.0	---	---	---	---

Note : Minimum Detectable Limit of SO<sub>2</sub> & Nox is 0.1 and 0.01 ppm respectively.

N.D= Not Detectable

Instrument Used : 2 Nos of Stack Monitoring Kit - Vayubodhan make - VSS I

Both Stack kit have calibration Due on : 05/05/2014

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Ref. No. : 385/12/2013-14

Date: 31/12/2013

### WORK ZONE NOISE LEVEL MEASUREMENT

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Date of sampling : 8th to 12th December,2013

Sr. No.	Location of Sampling	Results Avg. in dB(A)
01.	Inside Control Room of Sinter Plant	62.5
02.	Nr. Stock House of BF	72.4
03.	Inside Control Room of BF	64.7
04.	Inside Control Room of Blower House	66.2
05.	Inside Control of Cast House	68.4
06.	Inside Control Room of CPP	60.6
07.	Inside Control Room of Annealing Furnace of DISP	61.7
08.	Inside Laboratory of BF	58.5
09.	Inside Laboratory of DISP	62.2
10.	Inside ID & OD Control Room of JCO Plant	63.8
11.	Inside Control Room – Mill area of Spiral Plant-2	65.3
12.	Inside Spiral – 1	67.1
13.	Nr. Pipe cutting Area of Spiral Plant	72.3
14.	Inside JCO Plant	65.9
15.	Nr. JCO Press	67.5
16.	Inside DISP Plant	74.3
17.	Inside Coating Plant	67.2
18.	Nr. CCM SDP-II	71.6
19.	Inside Control Room of Annealing Furnace of SDP-II	61.4
20.	Inside New Coating Plant	70.5
21.	Inside Control Room of BF-2	65.7
22.	Inside Spiral-2	72.6
23.	Nr. Zinc Coating SDP-II	73.9
24.	Nr. Stock House of BF-2	69.4
25.	C/R Blower House of BF-2	67.8

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 : 29/09/2014

Royal Environment Auditing & Consultancy Service

*M. K. J.*  
Analyst



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Ref. No. : 386/12/2013-14

Date: 31/12/2013

### AMBIENT NOISE LEVEL MEASUREMENT

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Date of sampling : 8th to 12th December,2013

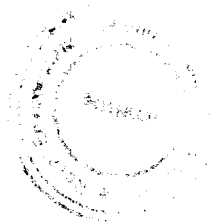
Sr. No.	Location of Sampling	Results in dB(A) (Day Time)	Results in dB(A) (Night Time)
	<b>Permissible Limits</b>	<b>75.0</b>	<b>70.0</b>
01.	Nr. Admin. Building	60.4	58.8
02.	Nr. Old Colony	59.9	58.1
03.	Nr. LPG Yard	66.2	63.3
04.	Nr. Sinter Plant	70.7	65.4
05.	Nr. R. O. Plant	65.7	61.1
06.	Nr. Gate No. 2	70.2	68.5
07.	Nr. New Colony	62.4	60.2
08.	Nr. SDP-2	67.9	65.3
09.	Nr. BLAST FURNACE-2	70.3	69.6
10.	Nr. New Coating	66.4	63.8

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 : 29/09/2014

Royal Environment Auditing & Consultancy Service



*Mrunoj*  
Analyst



# Royal

## Environment Auditing & Consultancy Service

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Ref. No. 887/12/2013-14

Date: 31/12/2013

### REPORT OF DOMESTIC WASTE WATER ANALYSIS

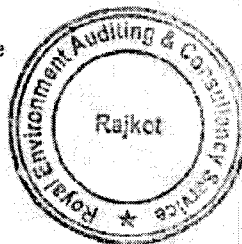
Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Source Of Sample Collection : Domestic Effluent After Treatment

Date of Sampling : 25/12/2013

Sr. No.	Parameters	Unit	GPCB limits	STP Inlet	STP Outlet
01.	pH	pH Unit	----	7.61	7.24
02.	BOD (3 Days at 27°C)	mg/l	<20	248	14
03.	Suspended Solids	mg/l	<30	137	24
04.	Residual Chlorine	mg/l	Min. 0.5	----	0.45

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Analyst

M 9/12/13

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

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

1 Name of the Department/Plant: **Sinter, BF, DISP, JCO & Coating Units at Jindal Saw Limited, Samaghogha.**2 Raw materials, by products and finished products involved in the process. **TOTAL DUST**

3 Particulars of sampling

Date of Sampling : 6th to 25th December, 2013

Sr. No	Location Operation monitored	Identified Contaminate	Sampling Instrument used	Airborne Contamination			TWA concert ration (As given in Second Schedule)	Refrance Method	Number of workers exposed at the location being monitored	Remark	Signature person taking samples	Name (in block letters)
				Number of sample	Range	Average	mg/m3					
1	Spiral Plant Nr. ID/OD	Total Dust	Personal Respirable Dust sampler APM 800	02	4.5-5.5	5.00	10	Gravimetric	9	----	Mr. Manoj Sonrat	
2	JCO Plant Nr. JCO Press	Total Dust		02	3.5-4	3.75	10	Gravimetric	7	----		
3	Sinter Plant At First Floor	Total Dust		02	2-3	2.5	10	Gravimetric	8	----		
4	BF Plant (Cast House)	CO		02	0.9-1	0.95	2	Gravimetric	6	----		
		Total Dust			3.5-4.5	4.0	10					
5	Coating Plant-1 (Blasting Area)	Total Dust		02	3-5.5	4.3	10	Gravimetric	6	----		
6	DISP Plant Main Entrance	Total Dust		02	4-5	4.5	10	Gravimetric	9	----		
7	Spiral Plant -2 Nr. ID/OD	Total Dust		02	2.5-3	2.8	10	Gravimetric	8	----		
8	Coating Plant-2 (Blasting Area)	Total Dust		02	4.5-5.5	5.0	10	Gravimetric	6	----		
9	Coating Plant-3 (Blasting Area)	Total Dust		02	5-6.5	5.8	10	Gravimetric	6	----		
10	Small Dia Ductile Iron pipe	Total Dust	02	4.5-6.5	5.5	10	Gravimetric	9	----			

Instruments used : Envirotech make personal sampler, Model No. APM 800

Calibration Date Due on : 02/12/2014

For: Royal Environment Auditing &amp; Consultancy Service

*Manoj*  
Authorized Sign