



Regd. Off.  
**JK Cement LTD.**

CIN : L17229UP1994PLC017199

ISO 9001:2008, ISO 14001:2004 & OHSAS 18001 : 2007 CERTIFIED COMPANY

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**J.K. Cement Works, Mangrol**  
C/o. Kailash Nagar-312617, Nimbahera  
Distt. Chittorgarh (Raj.) INDIA

Our Ref. No.: MGR-PC-21/ *905*

Date: 29.05.2018

To,

➔ **The Director,**  
Indira Paryavaran Bhavan,  
JOR Bagh Road, Aliganj,  
**New Delhi-110003**

**Sub:** Environmental Clearance Compliance report for Expansion of Clinker and Cement production, Captive power plant and WHR of M/s J.K. Cement Works, Mangrol at Village- Mangrol, District-Chittorgarh, Rajasthan.

**Ref.:** Environmental Clearance letter no. J-11011/267/2013-IA .II (I) dated. 08.09.2016

Dear Sir,

We are enclosing herewith the compliance report of Environmental Clearance conditions for Expansion of Clinker (2.90 MMTPA to 5.65 MMTPA) and Cement (3.54 MMTPA to 7.05 MMTPA) Captive Power Plant from 25 MW to 60 MW, by installation of an additional coal based Captive power plant of 35 MW to and WHRB from 10 MW to 20 MW by Installation of an additional waste heat recovery boiler of 10 MW at our J.K. Cement Works, Mangrol. We are submitting herewith compliance report **from the month of October' 2017 to March' 2018 in hard copy as well as mail as soft copy** for your kind reference and record. We trust you will find the same in order.

Thanking you,

Yours Faithfully  
For J.K. Cement WORKS, MANGROL

S.K. Acharya  
Asth. Vice President (E & I)

**Encl: a/a**

**Copy to:**

- 1.The Director, Ministry of Environment and Forests, Regional office (Central Region), Kendriya Bhawan, 5th Floor, Sector 'H', ALIGANJ, LUCKNOW- 226020 (U.P.)
- 2.The Additional Principal Chief Conservator of Forest (C) Ministry of Environment, Forests & Climate Change, Regional office (CZ), Kendriya Bhawan, 5th Floor, Sector 'H', ALIGANJ, LUCKNOW- 226020 (U.P.)
- 3.The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-CUM office complex, East Arjun Nagar, New Delhi 110032
4. The Chairman, Rajasthan State Pollution Control Board, 4, Institutional Area, Jhalana Doongri, JAIPUR - 302004 (RAJASTHAN)

**Corporate & Registered Office :** Kamla Tower, Kanpur-208001, (U. P.) INDIA  
**Phone :** +91-512-2371478 to 81 **Fax :** 2399854 **E-mail :** ho.grey@jkcement.com



J. K. Cement Works, Nimbahera  
J. K. Cement Works Mangrol  
J. K. Cement Works, Gotan  
J. K. Cement Works, Jharli

J. K. Power, Bamania  
J. K. Cement Works, Muddapur  
J. K. White Cement Works, Gotan  
J. K. White, Katni



**J.K. Cement WORKS, Mangrol (RAJ)**  
**25 MW THERMAL POWER PLANT**  
**Outlet of Power Plant**  
**(October' 2017 - March' 2018)**

| PARAMETERS/MONTH               | Oct-17                                       | Nov-17                                       | Dec-17                                       | Jan-18                                       | Feb-18                                       | Mar-18                                       |
|--------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| Total Suspended Solids ( TSS ) | 46                                           | 49                                           | 30                                           | 51                                           | 46                                           | 49                                           |
| Oil & Grease                   | <1.2                                         | <1.4                                         | <1.4                                         | <1.3                                         | <1.6                                         | <1.2                                         |
| Total Residual Chlorine        | NIL                                          | NIL                                          | <0.1                                         | NIL                                          | NIL                                          | NIL                                          |
| Free available chlorine        | <0.1                                         | <0.1                                         | <0.1                                         | <0.1                                         | <0.1                                         | <0.1                                         |
| pH Value                       | 7.35                                         | 7.50                                         | 7.42                                         | 7.80                                         | 7.50                                         | 7.65                                         |
| Temperature                    | 4°C higher than the intake water temperature | 4°C higher than the intake water temperature | 4°C higher than the intake water temperature | 4°C higher than the intake water temperature | 4°C higher than the intake water temperature | 4°C higher than the intake water temperature |
| Copper as ( Cu)                | <0.09                                        | <0.01                                        | <0.02                                        | <0.03                                        | <0.02                                        | <0.02                                        |
| Zinc (as Zn)                   | <0.02                                        | <0.03                                        | <0.02                                        | <0.02                                        | <0.01                                        | <0.02                                        |
| Iron (Total)                   | 0.1                                          | 0.2                                          | <0.05                                        | 0.2                                          | 0.2                                          | 0.2                                          |
| Chromium (total)               | 0.005                                        | 0.006                                        | <0.01                                        | 0.005                                        | 0.006                                        | 0.004                                        |
| BOD                            | 9.15                                         | 9.7                                          | 8                                            | 8.2                                          | 8.7                                          | 9.1                                          |
| COD                            | 46                                           | 49                                           | 46                                           | 48                                           | 51                                           | 48                                           |
| Phosphate                      | 3.9                                          | 3.75                                         | 3.6                                          | 3.75                                         | 3.9                                          | 3.95                                         |

**J.K. Cement WORKS, Mangrol (RAJ)**  
**25 MW THERMAL POWER PLANT**  
**Stack monitoring results (April 2017 - September 2017)**

| Location/Month                   | SPM ( Mg/Nm3) |        |        |        |        |        |
|----------------------------------|---------------|--------|--------|--------|--------|--------|
|                                  | Oct-17        | Nov-17 | Dec-17 | Jan-18 | Feb-18 | Mar-18 |
| Stack attached with Boiler       | 19.0          | 17.0   | 15.0   | 23.0   | 20.0   | 18.0   |
| Stack attached with Coal Crusher | 15.0          | 12.0   | 11.0   | 13.0   | 11.0   | 9.0    |

**J.K. Cement WORKS, Mangrol (RAJ)**  
**10 MW WASTE HEAT RECOVERY PLANT**  
 Outlet of Waste heat recovery plant  
**(October' 2017 - March' 2018)**

| <b>MONTH/<br/>PARAMETRS</b>           | <b>Oct-17</b>                                | <b>Nov-17</b>                                | <b>Dec-17</b>                                | <b>Jan-18</b>                                | <b>Feb-18</b>                                | <b>Mar-18</b>                                |
|---------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| Total Suspended Solids ( TSS ) (Mg/l) | 43                                           | 47                                           | 34                                           | 47                                           | 50                                           | 46                                           |
| Oil & Grease (Mg/l)                   | <1.6                                         | <1.2                                         | <1.4                                         | <1.6                                         | <1.2                                         | <1.4                                         |
| Total Residual Chlorine (Mg/l)        | NIL                                          | NIL                                          | <1.1                                         | NIL                                          | NIL                                          | NIL                                          |
| Phosphate (Mg/l)                      | 4                                            | 3.9                                          | 4                                            | 3.9                                          | 3.7                                          | 3.85                                         |
| Free available chlorine (Mg/l)        | <0.1                                         | <0.1                                         | <0.1                                         | <0.1                                         | <0.1                                         | <0.1                                         |
| pH Value                              | 7.65                                         | 7.4                                          | 7.4                                          | 7.7                                          | 7.85                                         | 7.5                                          |
| Temperature                           | 4°C higher than the intake water temperature | 4°C higher than the intake water temperature | 4°C higher than the intake water temperature | 4°C higher than the intake water temperature | 4°C higher than the intake water temperature | 4°C higher than the intake water temperature |
| Copper as ( Cu ) (Mg/l)               | <0.01                                        | <0.01                                        | <0.02                                        | <0.03                                        | <0.02                                        | <0.01                                        |
| Zinc (as Zn) (Mg/l)                   | <0.03                                        | <0.02                                        | <0.02                                        | <0.03                                        | <0.02                                        | <0.01                                        |
| Iron (Total) (Mg/l)                   | 0.2                                          | 0.2                                          | <0.05                                        | 0.3                                          | 0.2                                          | 0.2                                          |
| Chromium (total) (Mg/l)               | 0.002                                        | 0.004                                        | <0.01                                        | 0.004                                        | 0.003                                        | 0.005                                        |
| BOD (Mg/l)                            | 8.7                                          | 9.2                                          | 7.6                                          | 8.1                                          | 8.4                                          | 8.9                                          |
| COD (Mg/l)                            | 42                                           | 46                                           | 43                                           | 46                                           | 49                                           | 51                                           |

**J.K. Cement WORKS, MANGROL (RAJ)**  
**AMBIENT AIR QUALITY AVERAGE RESULTS (SPM) COMMON**  
**FOR UNIT-1, UNIT-2, 25 MW CPP & 10 MW WHR**  
**( ALL VALUES IN MICROGRAMS / CUBIC METER )**  
**(October' 2017 - March' 2018)**

| S.No. & Month              | LOCATION / PERAMETER | NEAR TIME OFFICE | NEAR THERMAL POWER PLANT | NEAR RAW MATERIAL GATE | NEAR PACKING PLANT GATE | Remarks |
|----------------------------|----------------------|------------------|--------------------------|------------------------|-------------------------|---------|
| <b>October' 2017</b>       |                      |                  |                          |                        |                         |         |
| 1                          | SPM                  | 335.8            | 384.0                    | 359.0                  | 319.0                   |         |
| 2                          | SO2                  | 17.6             | 19.5                     | 16.7                   | 12.6                    |         |
| 3                          | NOX                  | 30.6             | 33.6                     | 27.9                   | 21.8                    |         |
| 4                          | CO                   | 472.3            | 701.3                    | 596.4                  | 405.5                   |         |
| <b>November' 2017</b>      |                      |                  |                          |                        |                         |         |
| 1                          | SPM                  | 328.5            | 345.0                    | 394.2                  | 358.5                   |         |
| 2                          | SO2                  | 12.3             | 15.7                     | 19.3                   | 16.5                    |         |
| 3                          | NOX                  | 23.8             | 28.4                     | 36.7                   | 30.7                    |         |
| 4                          | CO                   | 458.0            | 572.5                    | 801.5                  | 629.8                   |         |
| <b>December' 2017</b>      |                      |                  |                          |                        |                         |         |
| 1                          | SPM                  | 343.0            | 381.5                    | 399.7                  | 369.3                   |         |
| 2                          | SO2                  | 13.0             | 16.4                     | 18.5                   | 14.3                    |         |
| 3                          | NOX                  | 26.8             | 32.3                     | 34.5                   | 29.1                    |         |
| 4                          | CO                   | 529.6            | 663.1                    | 801.5                  | 710.9                   |         |
| <b>January' 2018</b>       |                      |                  |                          |                        |                         |         |
| 1                          | SPM                  | 319.3            | 352.5                    | 377.0                  | 350.3                   |         |
| 2                          | SO2                  | 10.1             | 13.9                     | 17.0                   | 14.1                    |         |
| 3                          | NOX                  | 20.9             | 26.7                     | 31.7                   | 26.2                    |         |
| 4                          | CO                   | 462.8            | 410.3                    | 644.1                  | 572.5                   |         |
| <b>February' 2018</b>      |                      |                  |                          |                        |                         |         |
| 1                          | SPM                  | 334.7            | 350.8                    | 392.7                  | 373.8                   |         |
| 2                          | SO2                  | 12.5             | 14.0                     | 18.5                   | 16.0                    |         |
| 3                          | NOX                  | 25.0             | 27.7                     | 32.0                   | 27.4                    |         |
| 4                          | CO                   | 500.9            | 515.3                    | 787.2                  | 586.8                   |         |
| <b>March' 2018</b>         |                      |                  |                          |                        |                         |         |
| 1                          | SPM                  | 335.8            | 363.3                    | 420.3                  | 383.3                   |         |
| 2                          | SO2                  | 12.0             | 15.1                     | 21.2                   | 19.3                    |         |
| 3                          | NOX                  | 23.7             | 29.2                     | 36.1                   | 32.6                    |         |
| 4                          | CO                   | 472              | 672.7                    | 858.8                  | 787.2                   |         |
| <b>Six monthly Average</b> |                      |                  |                          |                        |                         |         |
| 1                          | SPM                  | 332.8            | 362.8                    | 390.5                  | 359.0                   |         |
| 2                          | SO2                  | 12.9             | 15.8                     | 18.5                   | 15.4                    |         |
| 3                          | NOX                  | 25.1             | 29.7                     | 33.2                   | 28.0                    |         |
| 4                          | CO                   | 482.6            | 589.2                    | 748.2                  | 615.4                   |         |

**Fugitive Emission Monitoring Report**  
**April' 2017 - September' 2017**

| Month/Year            | Oct-17 | Nov-17 | Dec-17 | Jan-18 | Feb-18 | Mar-18 |
|-----------------------|--------|--------|--------|--------|--------|--------|
| <b>NEAR COAL YARD</b> | 1510.4 | 1481.1 | 1756.2 | 1489.6 | 1712.2 | 1725.2 |

**J.K. Cement WORKS, MANGROL (RAJ) (Unit-1)**  
**DATA SHEET FOR PARTICULATE MATTER EMISSION FROM POINT SOURCE**  
**October' 2017 - March' 2018**

| DATE       | NAME OF THE<br>STACK / DUCT<br>ATTACHED WITH UNIT<br>AND MONTH | CROSS<br>SECTIONAL<br>AREA OF<br>DUCT ( M2 ) | STACK<br>GASES<br>TEMP.<br>( ° K ) | STACK<br>GASES<br>VELOCITY<br>( M / Sec.) | FLOW OF<br>GASES IN<br>STACK<br>(NM³/Sec.) | DUST<br>CONC.<br>(Mg/NM³) | MEAN<br>DUST<br>CONC.<br>(Mg/NM³) | EMISSION<br>RATE<br>(Ts/DAY) | REMARK |
|------------|----------------------------------------------------------------|----------------------------------------------|------------------------------------|-------------------------------------------|--------------------------------------------|---------------------------|-----------------------------------|------------------------------|--------|
|            | October'2017                                                   |                                              |                                    |                                           |                                            |                           |                                   |                              |        |
| 02.10.2017 | KILN + RAW MILL -1 (B.H.)                                      | 5.23                                         | 417                                | 14.19                                     | 53.04                                      | 19.40                     | 16.20                             | 0.09                         |        |
| 09.10.2017 | KILN + RAW MILL -1 (B.H.)                                      | 5.23                                         | 412                                | 14.92                                     | 56.44                                      | 12.30                     |                                   | 0.06                         |        |
| 16.10.2017 | KILN + RAW MILL -1 (B.H.)                                      | 5.23                                         | 415                                | 14.27                                     | 53.59                                      | 15.60                     |                                   | 0.07                         |        |
| 23.10.2017 | KILN + RAW MILL -1 (B.H.)                                      | 5.23                                         | 410                                | 14.46                                     | 54.97                                      | 17.50                     |                                   | 0.08                         |        |
|            | November'2017                                                  |                                              |                                    |                                           |                                            |                           |                                   |                              |        |
| 03.11.2017 | KILN + RAW MILL -1 (B.H.)                                      | 5.23                                         | 412                                | 13.35                                     | 50.50                                      | 11.70                     | 11.7                              | 0.051                        |        |
| 10.11.2017 | KILN + RAW MILL -1 (B.H.)                                      | 5.23                                         | 417                                | 15.64                                     | 58.45                                      | 13.70                     |                                   | 0.069                        |        |
| 17.11.2017 | KILN + RAW MILL -1 (B.H.)                                      | 5.23                                         | 413                                | 14.67                                     | 55.36                                      | 9.8                       |                                   | 0.047                        |        |
| 30.11.2017 | KILN + RAW MILL -1 (B.H.)                                      | Under Maintenance                            |                                    |                                           |                                            |                           |                                   |                              |        |
|            | December'2017                                                  |                                              |                                    |                                           |                                            |                           |                                   |                              |        |
| 04.12.2017 | KILN + RAW MILL -1 (B.H.)                                      | Under Maintenance                            |                                    |                                           |                                            |                           | 14.5                              |                              |        |
| 11.12.2017 | KILN + RAW MILL -1 (B.H.)                                      |                                              |                                    |                                           |                                            |                           |                                   |                              |        |
| 18.12.2017 | KILN + RAW MILL -1 (B.H.)                                      |                                              |                                    |                                           |                                            |                           |                                   |                              |        |
| 30.12.2017 | KILN + RAW MILL -1 (B.H.)                                      | 5.23                                         | 422                                | 14.33                                     | 52.92                                      | 14.50                     |                                   | 0.066                        |        |
|            | January'2018                                                   |                                              |                                    |                                           |                                            |                           |                                   |                              |        |
| 04.01.2018 | KILN + RAW MILL -1 (B.H.)                                      | 5.23                                         | 420                                | 14.24                                     | 52.84                                      | 14.10                     | 18.4                              | 0.064                        |        |
| 11.01.2018 | KILN + RAW MILL -1 (B.H.)                                      | 5.23                                         | 412                                | 15.08                                     | 57.05                                      | 17.40                     |                                   | 0.086                        |        |
| 18.01.2018 | KILN + RAW MILL -1 (B.H.)                                      | 5.23                                         | 417                                | 15.64                                     | 58.45                                      | 22.80                     |                                   | 0.115                        |        |
| 25.01.2018 | KILN + RAW MILL -1 (B.H.)                                      | 5.23                                         | 422                                | 15.05                                     | 55.58                                      | 19.10                     |                                   | 0.092                        |        |
|            | February'2018                                                  |                                              |                                    |                                           |                                            |                           |                                   |                              |        |
| 01.02.2018 | KILN + RAW MILL -1 (B.H.)                                      | 5.23                                         | 417                                | 13.43                                     | 50.19                                      | 12.10                     | 13.5                              | 0.052                        |        |
| 08.02.2018 | KILN + RAW MILL -1 (B.H.)                                      | 5.23                                         | 422                                | 15.94                                     | 58.87                                      | 16.60                     |                                   | 0.084                        |        |
| 15.02.2018 | KILN + RAW MILL -1 (B.H.)                                      | 5.23                                         | 420                                | 15.18                                     | 56.33                                      | 14.20                     |                                   | 0.069                        |        |
| 22.02.2018 | KILN + RAW MILL -1 (B.H.)                                      | 5.23                                         | 418                                | 14.37                                     | 53.58                                      | 10.90                     |                                   | 0.050                        |        |
|            | March'2018                                                     |                                              |                                    |                                           |                                            |                           |                                   |                              |        |
| 03.03.2018 | KILN + RAW MILL -1 (B.H.)                                      | 5.23                                         | 418                                | 14.76                                     | 55.03                                      | 7.60                      | 11.4                              | 0.036                        |        |
| 10.03.2018 | KILN + RAW MILL -1 (B.H.)                                      | 5.23                                         | 420                                | 16.11                                     | 59.78                                      | 13.40                     |                                   | 0.069                        |        |
| 17.03.2018 | KILN + RAW MILL -1 (B.H.)                                      | 5.23                                         | 425                                | 14.32                                     | 52.51                                      | 15.70                     |                                   | 0.071                        |        |
| 24.03.2018 | KILN + RAW MILL -1 (B.H.)                                      | 5.23                                         | 423                                | 15.12                                     | 55.71                                      | 9.00                      |                                   | 0.043                        |        |
|            | October'2017                                                   |                                              |                                    |                                           |                                            |                           |                                   |                              |        |
| 02.10.2017 | FOLAX COOLER (E.S.P)                                           | 7.07                                         | 425                                | 6.90                                      | 34.21                                      | 26.90                     | 31.4                              | 0.08                         |        |
| 09.10.2017 | FOLAX COOLER (E.S.P)                                           | 7.07                                         | 431                                | 7.74                                      | 37.84                                      | 33.50                     |                                   | 0.11                         |        |
| 16.10.2017 | FOLAX COOLER (E.S.P)                                           | 7.07                                         | 429                                | 8.26                                      | 40.57                                      | 36.70                     |                                   | 0.13                         |        |
| 23.10.2017 | FOLAX COOLER (E.S.P)                                           | 7.07                                         | 427                                | 7.09                                      | 34.98                                      | 28.60                     |                                   | 0.09                         |        |
|            | November'2017                                                  |                                              |                                    |                                           |                                            |                           |                                   |                              |        |
| 03.11.2017 | FOLAX COOLER (E.S.P)                                           | 7.07                                         | 421                                | 7.80                                      | 39.03                                      | 34.70                     | 35.2                              | 0.12                         |        |
| 10.11.2017 | FOLAX COOLER (E.S.P)                                           | 7.07                                         | 426                                | 6.89                                      | 34.08                                      | 28.50                     |                                   | 0.08                         |        |
| 17.11.2017 | FOLAX COOLER (E.S.P)                                           | 7.07                                         | 420                                | 7.26                                      | 36.42                                      | 38.80                     |                                   | 0.122                        |        |
| 30.11.2017 | FOLAX COOLER (E.S.P)                                           | Under Maintenance                            |                                    |                                           |                                            |                           |                                   |                              |        |
|            | December'2017                                                  |                                              |                                    |                                           |                                            |                           |                                   |                              |        |
| 04.12.2017 | FOLAX COOLER (E.S.P)                                           | Under Maintenance                            |                                    |                                           |                                            |                           | 40.3                              |                              |        |
| 11.12.2017 | FOLAX COOLER (E.S.P)                                           |                                              |                                    |                                           |                                            |                           |                                   |                              |        |
| 18.12.2017 | FOLAX COOLER (E.S.P)                                           |                                              |                                    |                                           |                                            |                           |                                   |                              |        |
| 30.12.2017 | FOLAX COOLER (E.S.P)                                           | 7.1                                          | 422                                | 7.3                                       | 36.6                                       | 40.3                      |                                   | 0.127                        |        |

[illegible]

|            |                         |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
|------------|-------------------------|----------------------|-----|-------|------|-------|-------|-------|------|-----|-------|------|-------|------|-------|--|
|            | November'2017           |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 03.11.2017 | CEMENT MILL - 1 (B.F.)  | Under Major Shutdown |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 10.11.2017 | CEMENT MILL - 1 (B.F.)  |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 17.11.2017 | CEMENT MILL - 1 (B.F.)  |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 30.11.2017 | CEMENT MILL - 1 (B.F.)  |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
|            | December'2017           |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 04.12.2017 | CEMENT MILL - 1 (B.F.)  | Under Major Shutdown |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 11.12.2017 | CEMENT MILL - 1 (B.F.)  |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 18.12.2017 | CEMENT MILL - 1 (B.F.)  |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 31.12.2017 | CEMENT MILL - 1 (B.F.)  |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
|            | January'2018            |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 04.01.2018 | CEMENT MILL - 1 (B.F.)  | Under Major Shutdown |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 11.01.2018 | CEMENT MILL - 1 (B.F.)  |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 18.01.2018 | CEMENT MILL - 1 (B.F.)  |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 31.01.2018 | CEMENT MILL - 1 (B.F.)  |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
|            | February'2018           |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 01.02.2018 | CEMENT MILL - 1 (B.F.)  | Under Major Shutdown |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 08.02.2018 | CEMENT MILL - 1 (B.F.)  |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 15.02.2018 | CEMENT MILL - 1 (B.F.)  |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 28.02.2018 | CEMENT MILL - 1 (B.F.)  |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
|            | March'2018              | Under Major Shutdown |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 03.03.2018 | CEMENT MILL - 1 (B.F.)  |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 10.03.2018 | CEMENT MILL - 1 (B.F.)  |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 17.03.2018 | CEMENT MILL - 1 (B.F.)  |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 31.03.2018 | CEMENT MILL - 1 (B.F.)  | Under Major Shutdown |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
|            | October'2017            |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 05.10.2017 | CEMENT MILL - 2 (E.S.P) |                      |     |       |      |       |       |       | 0.50 | 375 | 9.18  | 3.65 | 26.00 | 24.5 | 0.008 |  |
| 12.10.2017 | CEMENT MILL - 2 (E.S.P) |                      |     |       |      |       |       |       | 0.50 | 372 | 10.41 | 4.17 | 20.20 |      | 0.007 |  |
| 25.10.2017 | CEMENT MILL - 2 (E.S.P) | 0.50                 | 373 | 9.67  | 3.86 | 23.30 | 0.008 |       |      |     |       |      |       |      |       |  |
| 31.10.2017 | CEMENT MILL - 2 (E.S.P) | 0.50                 | 370 | 10.06 | 4.05 | 28.50 | 0.010 |       |      |     |       |      |       |      |       |  |
|            | November'2017           |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 02.11.2017 | CEMENT MILL - 2 (E.S.P) | 0.50                 | 368 | 9.71  | 3.93 | 20.70 | 22.4  | 0.007 |      |     |       |      |       |      |       |  |
| 08.11.2017 | CEMENT MILL - 2 (E.S.P) | 0.50                 | 371 | 10.84 | 4.35 | 24.10 |       | 0.009 |      |     |       |      |       |      |       |  |
| 16.11.2017 | CEMENT MILL - 2 (E.S.P) | Under Maintenance    |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 30.11.2017 | CEMENT MILL - 2 (E.S.P) |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
|            | December'2017           |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 04.12.2017 | CEMENT MILL - 2 (E.S.P) | Under Maintenance    |     |       |      |       | 15.6  |       |      |     |       |      |       |      |       |  |
| 11.12.2017 | CEMENT MILL - 2 (E.S.P) |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 18.12.2017 | CEMENT MILL - 2 (E.S.P) |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 30.12.2017 | CEMENT MILL - 2 (E.S.P) | 0.50                 | 373 | 5.68  | 2.27 | 15.60 |       | 0.003 |      |     |       |      |       |      |       |  |
|            | January'2018            |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 01.01.2018 | CEMENT MILL - 2 (B.F.)  | 0.50                 | 378 | 6.60  | 2.60 | 13.40 | 11.5  | 0.003 |      |     |       |      |       |      |       |  |
| 08.01.2018 | CEMENT MILL - 2 (B.F.)  | 0.50                 | 387 | 6.18  | 2.38 | 17.90 |       | 0.004 |      |     |       |      |       |      |       |  |
| 15.01.2018 | CEMENT MILL - 2 (B.F.)  | 0.50                 | 382 | 6.84  | 2.67 | 8.40  |       | 0.002 |      |     |       |      |       |      |       |  |
| 22.01.2018 | CEMENT MILL - 2 (B.F.)  | 0.50                 | 377 | 7.55  | 2.98 | 6.40  |       | 0.002 |      |     |       |      |       |      |       |  |
|            | February'2018           |                      |     |       |      |       |       |       |      |     |       |      |       |      |       |  |
| 02.02.2018 | CEMENT MILL - 2 (B.F.)  | 0.50                 | 375 | 7.07  | 2.81 | 10.30 | 9.7   | 0.003 |      |     |       |      |       |      |       |  |
| 09.02.2018 | CEMENT MILL - 2 (B.F.)  | 0.50                 | 381 | 7.61  | 2.98 | 7.20  |       | 0.002 |      |     |       |      |       |      |       |  |
| 17.02.2018 | CEMENT MILL - 2 (B.F.)  | 0.50                 | 372 | 6.23  | 2.50 | 9.20  |       | 0.002 |      |     |       |      |       |      |       |  |
| 24.02.2018 | CEMENT MILL - 2 (B.F.)  | 0.50                 | 377 | 6.80  | 2.69 | 12.10 |       | 0.003 |      |     |       |      |       |      |       |  |

|            |                        |                   |     |       |      |       |      |       |  |
|------------|------------------------|-------------------|-----|-------|------|-------|------|-------|--|
|            | March'2018             |                   |     |       |      |       |      |       |  |
| 06.03.2018 | CEMENT MILL - 2 (B.F.) | 0.50              | 373 | 7.52  | 3.00 | 12.10 | 10.8 | 0.003 |  |
| 13.03.2018 | CEMENT MILL - 2 (B.F.) | 0.50              | 378 | 7.31  | 2.88 | 8.00  |      | 0.002 |  |
| 20.03.2018 | CEMENT MILL - 2 (B.F.) | 0.50              | 371 | 6.59  | 2.65 | 13.50 |      | 0.003 |  |
| 23.03.2018 | CEMENT MILL - 2 (B.F.) | 0.50              | 375 | 8.09  | 3.21 | 9.70  |      | 0.003 |  |
|            | October'2017           |                   |     |       |      |       |      |       |  |
| 03.10.2017 | CRUSHER-1 (B.F.)       | 0.38              | 318 | 14.52 | 5.17 | 23.20 | 26.3 | 0.01  |  |
| 12.10.2017 | CRUSHER-1 (B.F.)       | 0.38              | 317 | 18.87 | 6.74 | 25.70 |      | 0.01  |  |
| 18.10.2017 | CRUSHER-1 (B.F.)       | 0.38              | 320 | 19.44 | 6.88 | 27.40 |      | 0.02  |  |
| 26.10.2017 | CRUSHER-1 (B.F.)       | 0.38              | 319 | 17.15 | 6.09 | 28.80 |      | 0.02  |  |
|            | November'2017          |                   |     |       |      |       |      |       |  |
| 03.11.2017 | CRUSHER-1 (B.F.)       | 0.38              | 321 | 15.39 | 5.43 | 28.00 | 25.2 | 0.013 |  |
| 10.11.2017 | CRUSHER-1 (B.F.)       | 0.38              | 316 | 19.56 | 7.01 | 26.20 |      | 0.016 |  |
| 17.11.2017 | CRUSHER-1 (B.F.)       | 0.38              | 318 | 17.96 | 6.40 | 21.30 |      | 0.012 |  |
| 30.11.2017 | CRUSHER-1 (B.F.)       | Under Maintenance |     |       |      |       |      |       |  |
|            | December'2017          |                   |     |       |      |       |      |       |  |
| 04.12.2017 | CRUSHER-1 (B.F.)       | Under Maintenance |     |       |      |       | 24.2 |       |  |
| 11.12.2017 | CRUSHER-1 (B.F.)       |                   |     |       |      |       |      |       |  |
| 18.12.2017 | CRUSHER-1 (B.F.)       | 0.38              | 317 | 19.40 | 6.93 | 21.80 |      | 0.013 |  |
| 30.12.2017 | CRUSHER-1 (B.F.)       | 0.38              | 312 | 18.11 | 6.57 | 26.60 |      | 0.015 |  |
|            | January'2018           |                   |     |       |      |       |      |       |  |
| 01.01.2018 | CRUSHER-1 (B.F.)       | 0.38              | 308 | 18.60 | 6.84 | 23.00 | 19.2 | 0.014 |  |
| 08.01.2018 | CRUSHER-1 (B.F.)       | 0.38              | 310 | 19.83 | 7.24 | 27.60 |      | 0.017 |  |
| 15.01.2018 | CRUSHER-1 (B.F.)       | 0.38              | 307 | 18.09 | 6.67 | 15.00 |      | 0.009 |  |
| 22.01.2018 | CRUSHER-1 (B.F.)       | 0.38              | 305 | 20.96 | 7.78 | 11.20 |      | 0.008 |  |
|            | February'2018          |                   |     |       |      |       |      |       |  |
| 02.02.2018 | CRUSHER-1 (B.F.)       | 0.38              | 315 | 16.45 | 5.91 | 16.60 | 17.4 | 0.008 |  |
| 09.02.2018 | CRUSHER-1 (B.F.)       | 0.38              | 312 | 17.79 | 6.46 | 18.20 |      | 0.010 |  |
| 16.02.2018 | CRUSHER-1 (B.F.)       | 0.38              | 318 | 19.62 | 6.99 | 21.80 |      | 0.013 |  |
| 24.02.2018 | CRUSHER-1 (B.F.)       | 0.38              | 311 | 18.18 | 6.62 | 12.90 |      | 0.007 |  |
|            | March'2018             |                   |     |       |      |       |      |       |  |
| 03.03.2018 | CRUSHER-1 (B.F.)       | 0.38              | 317 | 21.79 | 7.78 | 15.70 | 20.4 | 0.011 |  |
| 10.03.2018 | CRUSHER-1 (B.F.)       | 0.38              | 313 | 18.46 | 6.68 | 21.70 |      | 0.013 |  |
| 17.03.2018 | CRUSHER-1 (B.F.)       | 0.38              | 320 | 20.60 | 7.29 | 18.00 |      | 0.011 |  |
| 24.03.2018 | CRUSHER-1 (B.F.)       | 0.38              | 318 | 17.26 | 6.15 | 26.20 |      | 0.014 |  |

**J.K. Cement WORKS, MANGROL (RAJ) (Unit-2)**  
**DATA SHEET FOR PARTICULATE MATTER EMISSION FROM POINT SOURCE**  
**October' 2017 - March' 2018**

| DATE       | NAME OF THE STACK / DUCT ATTACHED WITH UNIT AND MONTH | CROSS SECTIONAL AREA OF DUCT ( M2 ) | STACK GASES TEMP. (° K ) | STACK GASES VELOCITY (M / Sec.) | FLOW OF GASES IN STACK (NM³/Sec.) | DUST CONC. (Mg/NM³) | MEAN DUST CONC. (Mg/NM³) | EMISSION RATE (Ts/DAY) | REMARK |
|------------|-------------------------------------------------------|-------------------------------------|--------------------------|---------------------------------|-----------------------------------|---------------------|--------------------------|------------------------|--------|
|            | October'17                                            |                                     |                          |                                 |                                   |                     |                          |                        |        |
| 05.10.2017 | KILN + RAW MILL (Bag House)                           | 14.18                               | 411                      | 13.74                           | 141.27                            | 14.80               | 11.7                     | 0.181                  |        |
| 13.10.2017 | KILN + RAW MILL (Bag House)                           | 14.18                               | 415                      | 14.15                           | 144.08                            | 12.20               |                          | 0.152                  |        |
| 20.10.2017 | KILN + RAW MILL (Bag House)                           | 14.18                               | 410                      | 14.46                           | 149.03                            | 8.80                |                          | 0.113                  |        |
| 27.10.2017 | KILN + RAW MILL (Bag House)                           | 14.18                               | 413                      | 13.66                           | 139.76                            | 10.90               |                          | 0.132                  |        |
|            | November'17                                           |                                     |                          |                                 |                                   |                     |                          |                        |        |
| 04.11.2017 | KILN + RAW MILL (Bag House)                           | 14.18                               | 417                      | 13.25                           | 134.27                            | 6.60                | 9.4                      | 0.077                  |        |
| 11.11.2017 | KILN + RAW MILL (Bag House)                           | 14.18                               | 411.00                   | 14.20                           | 146.00                            | 8.70                |                          | 0.11                   |        |
| 18.11.2017 | KILN + RAW MILL (Bag House)                           | 14.18                               | 414                      | 13.73                           | 140.14                            | 12.00               |                          | 0.145                  |        |
| 25.11.2017 | KILN + RAW MILL (Bag House)                           | 14.18                               | 410                      | 14.46                           | 149.03                            | 10.20               |                          | 0.131                  |        |
|            | December'17                                           |                                     |                          |                                 |                                   |                     |                          |                        |        |
| 04.12.2017 | KILN + RAW MILL (Bag House)                           | 14.18                               | 420                      | 12.61                           | 126.87                            | 14.40               | 13.4                     | 0.158                  |        |
| 11.12.2017 | KILN + RAW MILL (Bag House)                           | 14.18                               | 417                      | 13.13                           | 133.05                            | 11.90               |                          | 0.137                  |        |
| 18.12.2017 | KILN + RAW MILL (Bag House)                           | 14.18                               | 422                      | 14.33                           | 143.49                            | 16.60               |                          | 0.206                  |        |
| 25.12.2017 | KILN + RAW MILL (Bag House)                           | 14.18                               | 419                      | 13.34                           | 134.53                            | 10.60               |                          | 0.123                  |        |
|            | January'18                                            |                                     |                          |                                 |                                   |                     |                          |                        |        |
| 02.01.2018 | KILN + RAW MILL (Bag House)                           | 14.18                               | 417                      | 11.97                           | 121.30                            | 10.80               | 9.9                      | 0.113                  |        |
| 09.01.2018 | KILN + RAW MILL (Bag House)                           | 14.18                               | 419                      | 12.27                           | 123.74                            | 14.40               |                          | 0.154                  |        |
| 16.01.2018 | KILN + RAW MILL (Bag House)                           | 14.18                               | 421                      | 13.06                           | 131.09                            | 6.20                |                          | 0.070                  |        |
| 23.01.2018 | KILN + RAW MILL (Bag House)                           | 14.18                               | 415                      | 12.53                           | 127.58                            | 8.20                |                          | 0.090                  |        |
|            | February'18                                           |                                     |                          |                                 |                                   |                     |                          |                        |        |
| 03.02.2018 | KILN + RAW MILL (B.F.)                                | 14.18                               | 421                      | 12.88                           | 129.28                            | 14.50               | 11.5                     | 0.162                  |        |
| 10.02.2018 | KILN + RAW MILL (B.F.)                                | 14.18                               | 422                      | 12.51                           | 125.27                            | 12.20               |                          | 0.132                  |        |
| 17.02.2018 | KILN + RAW MILL (B.F.)                                | 14.18                               | 420                      | 11.88                           | 119.53                            | 9.10                |                          | 0.094                  |        |
| 24.02.2018 | KILN + RAW MILL (B.F.)                                | 14.18                               | 425.00                   | 13.92                           | 138.40                            | 10.00               |                          | 0.120                  |        |
|            | March'18                                              |                                     |                          |                                 |                                   |                     |                          |                        |        |
| 01.03.2018 | KILN + RAW MILL (B.F.)                                | 14.18                               | 425.00                   | 12.68                           | 126.07                            | 9.50                | 10.2                     | 0.103                  |        |
| 08.03.2018 | KILN + RAW MILL (B.F.)                                | 14.18                               | 421                      | 13.13                           | 131.79                            | 12.30               |                          | 0.140                  |        |
| 15.03.2018 | KILN + RAW MILL (B.F.)                                | 14.18                               | 423                      | 12.06                           | 120.48                            | 8.90                |                          | 0.093                  |        |
| 31.03.2018 | KILN + RAW MILL (B.F.)                                | Under Maintenance                   |                          |                                 |                                   |                     |                          |                        |        |
|            | October'17                                            |                                     |                          |                                 |                                   |                     |                          |                        |        |
| 05.10.2017 | FOLAX COOLER (E.S.P)                                  | 8.8                                 | 418                      | 6.7                             | 42.2                              | 23.6                | 22.3                     | 0.086                  |        |
| 13.10.2017 | FOLAX COOLER (E.S.P)                                  | 8.8                                 | 416                      | 7.3                             | 46.1                              | 26.3                |                          | 0.105                  |        |
| 20.10.2017 | FOLAX COOLER (E.S.P)                                  | 8.8                                 | 412                      | 8.2                             | 52.1                              | 18.7                |                          | 0.084                  |        |
| 27.10.2017 | FOLAX COOLER (E.S.P)                                  | 8.8                                 | 414                      | 6.4                             | 40.4                              | 20.6                |                          | 0.072                  |        |
|            | November'17                                           |                                     |                          |                                 |                                   |                     |                          |                        |        |
| 04.11.2017 | FOLAX COOLER (E.S.P)                                  | 8.80                                | 425                      | 6.41                            | 39.55                             | 28.70               | 24.2                     | 0.098                  |        |
| 11.11.2017 | FOLAX COOLER (E.S.P)                                  | 8.80                                | 417.00                   | 8.38                            | 52.70                             | 19.60               |                          | 0.089                  |        |
| 18.11.2017 | FOLAX COOLER (E.S.P)                                  | 8.80                                | 420                      | 7.15                            | 44.64                             | 22.60               |                          | 0.087                  |        |
| 25.11.2017 | FOLAX COOLER (E.S.P)                                  | 8.80                                | 421                      | 6.82                            | 42.48                             | 25.90               |                          | 0.095                  |        |
|            | December'17                                           |                                     |                          |                                 |                                   |                     |                          |                        |        |
| 04.12.2017 | FOLAX COOLER (E.S.P)                                  | 8.80                                | 420                      | 6.80                            | 42.46                             | 25.80               | 26.4                     | 0.095                  |        |
| 11.12.2017 | FOLAX COOLER (E.S.P)                                  | 8.80                                | 423                      | 7.58                            | 46.99                             | 28.20               |                          | 0.114                  |        |
| 18.12.2017 | FOLAX COOLER (E.S.P)                                  | 8.80                                | 419                      | 6.18                            | 38.68                             | 24.40               |                          | 0.082                  |        |
| 25.12.2017 | FOLAX COOLER (E.S.P)                                  | 8.80                                | 425                      | 7.04                            | 43.44                             | 27.00               |                          | 0.101                  |        |

|            |                          |                   |     |       |       |       |      |       |  |
|------------|--------------------------|-------------------|-----|-------|-------|-------|------|-------|--|
|            | January'18               |                   |     |       |       |       |      |       |  |
| 02.01.2018 | CLINKER COOLER (ESP)     | 8.80              | 426 | 7.31  | 45.00 | 18.40 | 17.8 | 0.072 |  |
| 09.01.2018 | CLINKER COOLER (ESP)     | 8.80              | 421 | 5.67  | 35.32 | 22.90 |      | 0.070 |  |
| 16.01.2018 | CLINKER COOLER (ESP)     | 8.80              | 423 | 6.63  | 41.10 | 16.10 |      | 0.057 |  |
| 23.01.2018 | CLINKER COOLER (ESP)     | 8.80              | 425 | 5.80  | 35.79 | 13.70 |      | 0.042 |  |
|            | February'18              |                   |     |       |       |       |      |       |  |
| 03.02.2018 | CLINKER COOLER (ESP)     | 8.80              | 421 | 7.27  | 45.28 | 16.10 | 15.3 | 0.063 |  |
| 10.02.2018 | CLINKER COOLER (ESP)     | 8.80              | 418 | 5.65  | 35.45 | 18.90 |      | 0.058 |  |
| 17.02.2018 | CLINKER COOLER (ESP)     | 8.80              | 425 | 6.64  | 40.97 | 13.80 |      | 0.049 |  |
| 24.02.2018 | CLINKER COOLER (ESP)     | 8.80              | 420 | 5.77  | 36.03 | 12.30 |      | 0.038 |  |
|            | March'18                 |                   |     |       |       |       |      |       |  |
| 01.03.2018 | CLINKER COOLER (ESP)     | 8.80              | 426 | 5.95  | 36.63 | 18.20 | 18.4 | 0.058 |  |
| 08.03.2018 | CLINKER COOLER (ESP)     | 8.80              | 421 | 7.27  | 45.28 | 14.40 |      | 0.056 |  |
| 15.03.2018 | CLINKER COOLER (ESP)     | 8.80              | 428 | 5.59  | 34.25 | 22.7  |      | 0.067 |  |
| 31.03.2018 | CLINKER COOLER (ESP)     | Under Maintenance |     |       |       |       |      |       |  |
|            | October'17               |                   |     |       |       |       |      |       |  |
| 05.10.2017 | COAL MILL (B.F.)         | 2.00              | 335 | 16.88 | 30.03 | 24.00 | 18.8 | 0.062 |  |
| 13.10.2017 | COAL MILL (B.F.)         | 2.00              | 337 | 20.22 | 35.76 | 11.40 |      | 0.035 |  |
| 20.10.2017 | COAL MILL (B.F.)         | 2.00              | 332 | 17.36 | 31.16 | 18.10 |      | 0.049 |  |
| 27.10.2017 | COAL MILL (B.F.)         | 2.00              | 334 | 15.36 | 27.41 | 21.80 |      | 0.052 |  |
|            | November'17              |                   |     |       |       |       |      |       |  |
| 04.11.2017 | COAL MILL (B.F.)         | 2.00              | 331 | 19.56 | 35.22 | 14.50 | 17.8 | 0.044 |  |
| 11.11.2017 | COAL MILL (B.F.)         | 2.00              | 335 | 17.58 | 31.28 | 21.70 |      | 0.059 |  |
| 18.11.2017 | COAL MILL (B.F.)         | 2.00              | 337 | 14.45 | 25.56 | 19.10 |      | 0.042 |  |
| 25.11.2017 | COAL MILL (B.F.)         | 2.00              | 332 | 18.61 | 33.41 | 16.00 |      | 0.046 |  |
|            | December'17              |                   |     |       |       |       |      |       |  |
| 04.12.2017 | COAL MILL (B.F.)         | 2.00              | 333 | 18.48 | 33.08 | 23.90 | 20.4 | 0.068 |  |
| 11.12.2017 | COAL MILL (B.F.)         | 2.00              | 338 | 23.14 | 40.80 | 16.90 |      | 0.060 |  |
| 18.12.2017 | COAL MILL (B.F.)         | 2.00              | 331 | 20.25 | 36.46 | 22.20 |      | 0.070 |  |
| 25.12.2017 | COAL MILL (B.F.)         | 2.00              | 334 | 19.50 | 34.80 | 18.50 |      | 0.056 |  |
|            | January'18               |                   |     |       |       |       |      |       |  |
| 02.01.2018 | COAL MILL (B.F.)         | 2.00              | 338 | 21.17 | 37.33 | 13.50 | 12.3 | 0.044 |  |
| 09.01.2018 | COAL MILL (B.F.)         | 2.00              | 341 | 23.67 | 41.37 | 17.90 |      | 0.064 |  |
| 16.01.2018 | COAL MILL (B.F.)         | 2.00              | 335 | 18.59 | 33.07 | 10.10 |      | 0.029 |  |
| 23.01.2018 | COAL MILL (B.F.)         | 2.00              | 340 | 20.31 | 35.60 | 7.70  |      | 0.024 |  |
|            | February'18              |                   |     |       |       |       |      |       |  |
| 03.02.2018 | COAL MILL (B.F.)         | 2.00              | 342 | 19.58 | 34.12 | 10.60 | 10.9 | 0.031 |  |
| 10.02.2018 | COAL MILL (B.F.)         | 2.00              | 339 | 20.38 | 35.83 | 13.00 |      | 0.040 |  |
| 17.02.2018 | COAL MILL (B.F.)         | 2.00              | 345 | 18.71 | 32.32 | 8.90  |      | 0.025 |  |
| 24.02.2018 | COAL MILL (B.F.)         | 2.00              | 343 | 21.89 | 38.04 | 11.10 |      | 0.036 |  |
|            | March'18                 |                   |     |       |       |       |      |       |  |
| 01.03.2018 | COAL MILL (B.F.)         | 2.00              | 347 | 19.72 | 33.87 | 13.80 | 13.5 | 0.040 |  |
| 08.03.2018 | COAL MILL (B.F.)         | 2.00              | 341 | 20.44 | 35.73 | 10.70 |      | 0.033 |  |
| 15.03.2018 | COAL MILL (B.F.)         | 2.00              | 349 | 18.81 | 32.12 | 16.10 |      | 0.045 |  |
| 31.03.2018 | COAL MILL (B.F.)         | Under Maintenance |     |       |       |       |      |       |  |
|            | October'17               |                   |     |       |       |       |      |       |  |
| 03.10.2017 | CEMENT MILL (Bag filter) | 6.60              | 371 | 13.38 | 70.93 | 22.70 | 23.7 | 0.139 |  |
| 10.10.2017 | CEMENT MILL (Bag filter) | 6.60              | 375 | 13.98 | 73.32 | 27.20 |      | 0.172 |  |
| 17.10.2017 | CEMENT MILL (Bag filter) | 6.60              | 372 | 12.85 | 67.94 | 19.50 |      | 0.114 |  |
| 24.10.2017 | CEMENT MILL (Bag filter) | 6.60              | 373 | 13.63 | 71.87 | 25.40 |      | 0.158 |  |

|            |                          |      |        |       |       |       |      |       |  |
|------------|--------------------------|------|--------|-------|-------|-------|------|-------|--|
|            | <b>November'17</b>       |      |        |       |       |       |      |       |  |
| 02.11.2017 | CEMENT MILL (Bag filter) | 6.60 | 368    | 12.45 | 66.54 | 18.60 | 21.7 | 0.107 |  |
| 09.11.2017 | CEMENT MILL (Bag filter) | 6.60 | 371    | 13.38 | 70.93 | 22.30 |      | 0.137 |  |
| 16.11.2017 | CEMENT MILL (Bag filter) | 6.60 | 382    | 14.37 | 73.99 | 25.20 |      | 0.161 |  |
| 23.11.2017 | CEMENT MILL (Bag filter) | 6.60 | 375    | 13.88 | 72.22 | 20.60 |      | 0.129 |  |
|            | <b>December'17</b>       |      |        |       |       |       |      |       |  |
| 04.12.2017 | CEMENT MILL (Bag filter) | 6.60 | 372    | 12.85 | 67.94 | 24.20 | 22.8 | 0.142 |  |
| 11.12.2017 | CEMENT MILL (Bag filter) | 6.60 | 370    | 14.29 | 75.96 | 27.10 |      | 0.178 |  |
| 18.12.2017 | CEMENT MILL (Bag filter) | 6.60 | 378    | 14.04 | 73.05 | 17.80 |      | 0.112 |  |
| 25.12.2017 | CEMENT MILL (Bag filter) | 6.60 | 375    | 13.29 | 69.70 | 22.20 |      | 0.134 |  |
|            | <b>January'18</b>        |      |        |       |       |       |      |       |  |
| 02.01.2018 | CEMENT MILL (B.F.)       | 6.60 | 378    | 13.61 | 70.82 | 20.30 | 14.5 | 0.124 |  |
| 09.01.2018 | CEMENT MILL (B.F.)       | 6.60 | 382    | 14.52 | 74.76 | 13.00 |      | 0.084 |  |
| 16.01.2018 | CEMENT MILL (B.F.)       | 6.60 | 373    | 13.09 | 69.02 | 15.90 |      | 0.095 |  |
| 23.01.2018 | CEMENT MILL (B.F.)       | 6.60 | 376    | 13.47 | 70.46 | 8.90  |      | 0.054 |  |
|            | <b>February'18</b>       |      |        |       |       |       |      |       |  |
| 05.02.2018 | CEMENT MILL (B.F.)       | 6.6  | 377    | 12.8  | 66.78 | 13.9  | 18.2 | 0.080 |  |
| 12.02.2018 | CEMENT MILL (B.F.)       | 6.6  | 372    | 13.8  | 72.96 | 20.7  |      | 0.130 |  |
| 19.02.2018 | CEMENT MILL (B.F.)       | 6.6  | 369    | 14.22 | 75.79 | 22.1  |      | 0.145 |  |
| 27.02.2018 | CEMENT MILL (B.F.)       | 6.6  | 375    | 12.61 | 66.14 | 16.0  |      | 0.091 |  |
|            | <b>March'18</b>          |      |        |       |       |       |      |       |  |
| 02.03.2018 | CEMENT MILL (B.F.)       | 6.60 | 368    | 13.33 | 71.24 | 17.30 | 15.7 | 0.106 |  |
| 09.03.2018 | CEMENT MILL (B.F.)       | 6.60 | 378    | 14.61 | 76.02 | 19.60 |      | 0.129 |  |
| 16.03.2018 | CEMENT MILL (B.F.)       | 6.60 | 373    | 13.79 | 72.71 | 14.40 |      | 0.090 |  |
| 23.03.2018 | CEMENT MILL (B.F.)       | 6.60 | 370    | 12.85 | 68.31 | 11.40 |      | 0.067 |  |
|            | <b>October'17</b>        |      |        |       |       |       |      |       |  |
| 3.10.2017  | CRUSHER (B.F.)           | 1.23 | 315.00 | 10.25 | 11.89 | 21.70 | 25.3 | 0.022 |  |
| 10.10.2017 | CRUSHER (B.F.)           | 1.23 | 313.00 | 10.96 | 12.79 | 23.50 |      | 0.026 |  |
| 17.10.2017 | CRUSHER (B.F.)           | 1.23 | 317.00 | 11.23 | 12.94 | 26.30 |      | 0.029 |  |
| 23.10.2017 | CRUSHER (B.F.)           | 1.23 | 312.00 | 9.90  | 11.59 | 29.60 |      | 0.030 |  |
|            | <b>November'17</b>       |      |        |       |       |       |      |       |  |
| 04.11.2017 | CRUSHER (B.F.)           | 1.23 | 312    | 9.83  | 11.51 | 18.40 | 23.3 | 0.018 |  |
| 11.11.2017 | CRUSHER (B.F.)           | 1.23 | 316.00 | 11.32 | 13.09 | 25.90 |      | 0.029 |  |
| 18.11.2017 | CRUSHER (B.F.)           | 1.23 | 314.00 | 10.90 | 12.68 | 28.40 |      | 0.031 |  |
| 25.11.2017 | CRUSHER (B.F.)           | 1.23 | 310    | 10.22 | 12.04 | 20.50 |      | 0.021 |  |
|            | <b>December'17</b>       |      |        |       |       |       |      |       |  |
| 04.12.2017 | CRUSHER (B.F.)           | 1.23 | 315    | 10.38 | 12.04 | 22.2  | 21.2 | 0.023 |  |
| 11.12.2017 | CRUSHER (B.F.)           | 1.23 | 320    | 11.06 | 12.63 | 24.5  |      | 0.027 |  |
| 18.12.2017 | CRUSHER (B.F.)           | 1.23 | 318    | 9.95  | 11.43 | 17.3  |      | 0.017 |  |
| 25.12.2017 | CRUSHER (B.F.)           | 1.23 | 312    | 11.32 | 13.26 | 20.7  |      | 0.024 |  |
|            | <b>January'18</b>        |      |        |       |       |       |      |       |  |
| 02.01.2018 | CRUSHER BAG FILTER       | 1.23 | 307    | 9.68  | 11.52 | 22.10 | 16.6 | 0.022 |  |
| 09.01.2018 | CRUSHER BAG FILTER       | 1.23 | 311    | 10.41 | 12.23 | 19.6  |      | 0.021 |  |
| 16.01.2018 | CRUSHER BAG FILTER       | 1.23 | 309    | 10.81 | 12.78 | 14    |      | 0.015 |  |
| 25.01.2018 | CRUSHER BAG FILTER       | 1.23 | 312    | 10.17 | 11.91 | 10.6  |      | 0.011 |  |
|            | <b>February'18</b>       |      |        |       |       |       |      |       |  |
| 03.02.2018 | CRUSHER BAG FILTER       | 1.23 | 315    | 10.46 | 12.13 | 18.70 | 19.4 | 0.020 |  |
| 10.02.2018 | CRUSHER BAG FILTER       | 1.23 | 310    | 10.84 | 12.78 | 23.7  |      | 0.026 |  |
| 17.02.2018 | CRUSHER BAG FILTER       | 1.23 | 312    | 11.12 | 13.02 | 13.7  |      | 0.015 |  |
| 26.02.2018 | CRUSHER BAG FILTER       | 1.23 | 314    | 10.69 | 12.44 | 21.30 |      | 0.023 |  |

|            |                      |       |     |       |       |       |      |       |  |
|------------|----------------------|-------|-----|-------|-------|-------|------|-------|--|
|            | <b>March'18</b>      |       |     |       |       |       |      |       |  |
| 01.03.2018 | CRUSHER BAG FILTER   | 1.23  | 318 | 11.52 | 13.24 | 15.80 | 17.1 | 0.018 |  |
| 08.03.2018 | CRUSHER BAG FILTER   | 1.23  | 315 | 10.63 | 12.33 | 21.6  |      | 0.023 |  |
| 16.03.2018 | CRUSHER BAG FILTER   | 1.23  | 320 | 11.15 | 12.73 | 11.9  |      | 0.013 |  |
| 23.03.2018 | CRUSHER BAG FILTER   | 1.23  | 313 | 11.63 | 13.58 | 19    |      | 0.022 |  |
|            | <b>October'17</b>    |       |     |       |       |       |      |       |  |
| 02.10.2017 | PACKER -1 BAG FILTER | 0.785 | 318 | 11.17 | 8.22  | 19.4  | 20.5 | 0.014 |  |
| 09.10.2017 | PACKER -1 BAG FILTER | 0.785 | 320 | 12.47 | 9.12  | 24.9  |      | 0.020 |  |
| 16.10.2017 | PACKER -1 BAG FILTER | 0.785 | 324 | 12.13 | 8.76  | 16.9  |      | 0.013 |  |
| 23.10.2017 | PACKER -1 BAG FILTER | 0.785 | 322 | 11.55 | 8.39  | 20.9  |      | 0.015 |  |
|            | <b>November'17</b>   |       |     |       |       |       |      |       |  |
| 06.11.2017 | PACKER -1 BAG FILTER | 0.785 | 322 | 10.71 | 7.78  | 15.3  | 18.6 | 0.010 |  |
| 13.11.2017 | PACKER -1 BAG FILTER | 0.785 | 319 | 11.99 | 8.79  | 19.3  |      | 0.015 |  |
| 20.11.2017 | PACKER -1 BAG FILTER | 0.785 | 321 | 11.43 | 8.33  | 17.7  |      | 0.013 |  |
| 27.11.2017 | PACKER -1 BAG FILTER | 0.785 | 317 | 11.13 | 8.21  | 22    |      | 0.016 |  |
|            | <b>December'17</b>   |       |     |       |       |       |      |       |  |
| 05.12.2017 | PACKER -1 BAG FILTER | 0.785 | 320 | 11    | 8.04  | 14.8  | 16.7 | 0.010 |  |
| 12.12.2017 | PACKER -1 BAG FILTER | 0.785 | 325 | 11.48 | 8.26  | 21.5  |      | 0.015 |  |
| 19.12.2017 | PACKER -1 BAG FILTER | 0.785 | 318 | 11.9  | 8.75  | 18    |      | 0.014 |  |
| 26.12.2017 | PACKER -1 BAG FILTER | 0.785 | 322 | 10.78 | 7.83  | 12.5  |      | 0.008 |  |
|            | <b>January'18</b>    |       |     |       |       |       |      |       |  |
| 01.01.2018 | PACKER -1 BAG FILTER | 0.785 | 318 | 10.81 | 7.95  | 14.4  | 12.3 | 0.010 |  |
| 08.01.2018 | PACKER -1 BAG FILTER | 0.785 | 315 | 11.35 | 8.43  | 18.6  |      | 0.014 |  |
| 15.01.2018 | PACKER -1 BAG FILTER | 0.785 | 310 | 10.54 | 7.95  | 6.5   |      | 0.004 |  |
| 22.01.2018 | PACKER -1 BAG FILTER | 0.785 | 314 | 11.45 | 8.53  | 9.7   |      | 0.007 |  |
|            | <b>February'18</b>   |       |     |       |       |       |      |       |  |
| 05.02.2018 | PACKER -1 BAG FILTER | 0.785 | 314 | 11.41 | 8.5   | 12.7  | 11.8 | 0.009 |  |
| 13.02.2018 | PACKER -1 BAG FILTER | 0.785 | 320 | 10.48 | 7.66  | 9.2   |      | 0.006 |  |
| 20.02.2018 | PACKER -1 BAG FILTER | 0.785 | 317 | 11    | 8.12  | 15.1  |      | 0.011 |  |
| 27.02.2018 | PACKER -1 BAG FILTER | 0.785 | 319 | 11.75 | 8.62  | 10.2  |      | 0.008 |  |
|            | <b>March'18</b>      |       |     |       |       |       |      |       |  |
| 05.03.2018 | PACKER -1 BAG FILTER | 0.785 | 320 | 11.91 | 8.71  | 8.5   | 10.7 | 0.006 |  |
| 12.03.2018 | PACKER -1 BAG FILTER | 0.785 | 318 | 11.12 | 8.18  | 10.5  |      | 0.007 |  |
| 19.03.2018 | PACKER -1 BAG FILTER | 0.785 | 321 | 10.55 | 7.69  | 13.7  |      | 0.009 |  |
| 26.03.2018 | PACKER -1 BAG FILTER | 0.785 | 323 | 11.64 | 8.43  | 9.9   |      | 0.007 |  |
|            | <b>October'17</b>    |       |     |       |       |       |      |       |  |
| 02.10.2017 | PACKER -2 BAG FILTER | 0.785 | 320 | 11.36 | 8.3   | 18.1  | 19.7 | 0.013 |  |
| 09.10.2017 | PACKER -2 BAG FILTER | 0.785 | 318 | 12.80 | 9.42  | 20.5  |      | 0.017 |  |
| 16.10.2017 | PACKER -2 BAG FILTER | 0.785 | 317 | 12.37 | 9.13  | 16.3  |      | 0.013 |  |
| 23.10.2017 | PACKER -2 BAG FILTER | 0.785 | 322 | 11.19 | 8.13  | 24.0  |      | 0.017 |  |
|            | <b>November'17</b>   |       |     |       |       |       |      |       |  |
| 06.11.2017 | PACKER -2 BAG FILTER | 0.785 | 318 | 10.81 | 7.95  | 11.3  | 14.4 | 0.008 |  |
| 13.11.2017 | PACKER -2 BAG FILTER | 0.785 | 320 | 12.19 | 8.91  | 14.2  |      | 0.011 |  |
| 20.11.2017 | PACKER -2 BAG FILTER | 0.785 | 322 | 12.83 | 9.32  | 19.6  |      | 0.016 |  |
| 27.11.2017 | PACKER -2 BAG FILTER | 0.785 | 317 | 11.51 | 8.5   | 12.6  |      | 0.009 |  |
|            | <b>December'17</b>   |       |     |       |       |       |      |       |  |
| 05.12.2017 | PACKER -2 BAG FILTER | 0.785 | 322 | 11.55 | 8.39  | 23.9  | 23.3 | 0.017 |  |
| 12.12.2017 | PACKER -2 BAG FILTER | 0.785 | 319 | 12.34 | 9.05  | 19.9  |      | 0.016 |  |
| 19.12.2017 | PACKER -2 BAG FILTER | 0.785 | 317 | 11.17 | 8.24  | 28.5  |      | 0.020 |  |
| 26.12.2017 | PACKER -2 BAG FILTER | 0.785 | 320 | 12    | 8.77  | 21    |      | 0.016 |  |

|            |                      |       |     |       |      |      |      |       |  |
|------------|----------------------|-------|-----|-------|------|------|------|-------|--|
|            | <b>January'18</b>    |       |     |       |      |      |      |       |  |
| 01.01.2018 | PACKER -2 BAG FILTER | 0.785 | 317 | 11.72 | 8.65 | 19   | 15.7 | 0.014 |  |
| 08.01.2018 | PACKER -2 BAG FILTER | 0.785 | 319 | 12.48 | 9.15 | 23.3 |      | 0.018 |  |
| 15.01.2018 | PACKER -2 BAG FILTER | 0.785 | 315 | 11.3  | 8.39 | 9.1  |      | 0.007 |  |
| 22.01.2018 | PACKER -2 BAG FILTER | 0.785 | 321 | 12.27 | 8.94 | 11.5 |      | 0.009 |  |
|            | <b>February'18</b>   |       |     |       |      |      |      |       |  |
| 05.02.2018 | PACKER -2 BAG FILTER | 0.785 | 319 | 11.51 | 8.44 | 13.4 | 12.7 | 0.010 |  |
| 13.02.2018 | PACKER -2 BAG FILTER | 0.785 | 321 | 12.73 | 9.28 | 10.1 |      | 0.008 |  |
| 20.02.2018 | PACKER -2 BAG FILTER | 0.785 | 318 | 12.45 | 9.16 | 15.5 |      | 0.012 |  |
| 27.02.2018 | PACKER -2 BAG FILTER | 0.785 | 320 | 11.88 | 8.68 | 11.9 |      | 0.009 |  |
|            | <b>March'18</b>      |       |     |       |      |      |      |       |  |
| 05.03.2018 | PACKER -2 BAG FILTER | 0.785 | 320 | 12.53 | 9.16 | 18.5 | 14.8 | 0.015 |  |
| 12.03.2018 | PACKER -2 BAG FILTER | 0.785 | 324 | 11.27 | 8.14 | 12.3 |      | 0.009 |  |
| 19.03.2018 | PACKER -2 BAG FILTER | 0.785 | 322 | 12.84 | 9.33 | 13.5 |      | 0.011 |  |
| 26.03.2018 | PACKER -2 BAG FILTER | 0.785 | 319 | 11.59 | 8.5  | 15   |      | 0.011 |  |
|            | <b>October'17</b>    |       |     |       |      |      |      |       |  |
| 02.10.2017 | PACKER -3 BAG FILTER | 0.785 | 322 | 10.51 | 7.64 | 23.7 | 24.4 | 0.016 |  |
| 09.10.2017 | PACKER -3 BAG FILTER | 0.785 | 320 | 11.03 | 8.06 | 28   |      | 0.020 |  |
| 16.10.2017 | PACKER -3 BAG FILTER | 0.785 | 319 | 11.59 | 8.5  | 20.2 |      | 0.015 |  |
| 23.10.2017 | PACKER -3 BAG FILTER | 0.785 | 323 | 11.24 | 8.14 | 25.5 |      | 0.018 |  |
|            | <b>November'17</b>   |       |     |       |      |      |      |       |  |
| 06.11.2017 | PACKER -3 BAG FILTER | 0.785 | 318 | 10.98 | 8.08 | 18.9 | 20.8 | 0.013 |  |
| 13.11.2017 | PACKER -3 BAG FILTER | 0.785 | 321 | 10.67 | 7.78 | 26.4 |      | 0.018 |  |
| 20.11.2017 | PACKER -3 BAG FILTER | 0.785 | 316 | 11.78 | 8.7  | 16.7 |      | 0.013 |  |
| 27.11.2017 | PACKER -3 BAG FILTER | 0.785 | 320 | 11.39 | 8.33 | 21.1 |      | 0.015 |  |
|            | <b>December'17</b>   |       |     |       |      |      |      |       |  |
| 05.12.2017 | PACKER -3 BAG FILTER | 0.785 | 319 | 10.31 | 7.56 | 22.4 | 18.9 | 0.015 |  |
| 12.12.2017 | PACKER -3 BAG FILTER | 0.785 | 320 | 11.01 | 8.05 | 20.5 |      | 0.014 |  |
| 19.12.2017 | PACKER -3 BAG FILTER | 0.785 | 322 | 11.4  | 8.28 | 18.2 |      | 0.013 |  |
| 26.12.2017 | PACKER -3 BAG FILTER | 0.785 | 318 | 11.87 | 8.73 | 14.6 |      | 0.011 |  |
|            | <b>January'18</b>    |       |     |       |      |      |      |       |  |
| 01.01.2018 | PACKER -3 BAG FILTER | 0.785 | 316 | 10.78 | 7.98 | 15.9 | 13.8 | 0.011 |  |
| 08.01.2018 | PACKER -3 BAG FILTER | 0.785 | 318 | 10.35 | 7.61 | 20.2 |      | 0.013 |  |
| 15.01.2018 | PACKER -3 BAG FILTER | 0.785 | 312 | 11.85 | 8.88 | 7.9  |      | 0.006 |  |
| 22.01.2018 | PACKER -3 BAG FILTER | 0.785 | 315 | 10.05 | 7.46 | 11   |      | 0.007 |  |
|            | <b>February'18</b>   |       |     |       |      |      |      |       |  |
| 05.02.2018 | PACKER -3 BAG FILTER | 0.785 | 320 | 11.36 | 8.3  | 9.3  | 10.1 | 0.007 |  |
| 13.02.2018 | PACKER -3 BAG FILTER | 0.785 | 317 | 10.79 | 7.96 | 13   |      | 0.009 |  |
| 20.02.2018 | PACKER -3 BAG FILTER | 0.785 | 319 | 10.31 | 7.56 | 10.5 |      | 0.007 |  |
| 27.02.2018 | PACKER -3 BAG FILTER | 0.785 | 322 | 11.97 | 8.7  | 7.6  |      | 0.006 |  |
|            | <b>March'18</b>      |       |     |       |      |      |      |       |  |
| 05.03.2018 | PACKER -3 BAG FILTER | 0.785 | 325 | 10.58 | 7.62 | 13.1 | 12.2 | 0.009 |  |
| 12.03.2018 | PACKER -3 BAG FILTER | 0.785 | 322 | 11.22 | 8.15 | 11.4 |      | 0.008 |  |
| 19.03.2018 | PACKER -3 BAG FILTER | 0.785 | 321 | 11.9  | 8.67 | 9.1  |      | 0.007 |  |
| 26.03.2018 | PACKER -3 BAG FILTER | 0.785 | 324 | 11.33 | 8.18 | 15.1 |      | 0.011 |  |
|            | <b>October'17</b>    |       |     |       |      |      |      |       |  |
| 02.10.2017 | PACKER -4 BAG FILTER | 0.785 | 320 | 11.51 | 8.41 | 14.5 | 18.1 | 0.011 |  |
| 13.10.2017 | PACKER -4 BAG FILTER | 0.785 | 324 | 12.13 | 8.76 | 19   |      | 0.014 |  |
| 23.10.2017 | PACKER -4 BAG FILTER | 0.785 | 318 | 12.44 | 9.15 | 21.8 |      | 0.017 |  |
| 31.10.2017 | PACKER -4 BAG FILTER | 0.785 | 322 | 11.4  | 8.28 | 17.2 |      | 0.012 |  |

|            |                      |       |     |       |      |      |      |       |  |
|------------|----------------------|-------|-----|-------|------|------|------|-------|--|
|            | <b>November'17</b>   |       |     |       |      |      |      |       |  |
| 06.11.2017 | PACKER -4 BAG FILTER | 0.785 | 317 | 10.79 | 7.96 | 13.5 | 16.6 | 0.009 |  |
| 13.11.2017 | PACKER -4 BAG FILTER | 0.785 | 320 | 12.36 | 9.04 | 17   |      | 0.013 |  |
| 20.11.2017 | PACKER -4 BAG FILTER | 0.785 | 323 | 11.87 | 8.6  | 20.8 |      | 0.015 |  |
| 27.11.2017 | PACKER -4 BAG FILTER | 0.785 | 319 | 11.5  | 8.43 | 15.2 |      | 0.011 |  |
|            | <b>December'17</b>   |       |     |       |      |      |      |       |  |
| 05.12.2017 | PACKER -4 BAG FILTER | 0.785 | 321 | 11.53 | 8.4  | 19.7 | 24.2 | 0.014 |  |
| 12.12.2017 | PACKER -4 BAG FILTER | 0.785 | 319 | 12.03 | 8.82 | 22.1 |      | 0.017 |  |
| 19.12.2017 | PACKER -4 BAG FILTER | 0.785 | 317 | 12.28 | 9.06 | 28.5 |      | 0.022 |  |
| 26.12.2017 | PACKER -4 BAG FILTER | 0.785 | 322 | 11.24 | 8.17 | 26.5 |      | 0.019 |  |
|            | <b>January'18</b>    |       |     |       |      |      |      |       |  |
| 05.01.2018 | PACKER -4 BAG FILTER | 0.785 | 319 | 12.08 | 8.86 | 12.6 | 11.9 | 0.010 |  |
| 12.01.2018 | PACKER -4 BAG FILTER | 0.785 | 321 | 11.39 | 8.3  | 15.3 |      | 0.011 |  |
| 20.01.2018 | PACKER -4 BAG FILTER | 0.785 | 318 | 11.07 | 8.14 | 9.3  |      | 0.007 |  |
| 30.01.2018 | PACKER -4 BAG FILTER | 0.785 | 316 | 12.19 | 9.02 | 10.3 |      | 0.008 |  |
|            | <b>February'18</b>   |       |     |       |      |      |      |       |  |
| 05.02.2018 | PACKER -4 BAG FILTER | 0.785 | 322 | 12.4  | 9.01 | 15.1 | 14.5 | 0.012 |  |
| 13.02.2018 | PACKER -4 BAG FILTER | 0.785 | 318 | 11    | 8.09 | 18.7 |      | 0.013 |  |
| 21.02.2018 | PACKER -4 BAG FILTER | 0.785 | 320 | 11.88 | 8.68 | 13.5 |      | 0.010 |  |
| 28.02.2018 | PACKER -4 BAG FILTER | 0.785 | 323 | 11.26 | 8.15 | 10.6 |      | 0.007 |  |
|            | <b>March'18</b>      |       |     |       |      |      |      |       |  |
| 05.03.2018 | PACKER -4 BAG FILTER | 0.785 | 321 | 11.12 | 8.1  | 11.7 | 13.0 | 0.008 |  |
| 12.03.2018 | PACKER -4 BAG FILTER | 0.785 | 324 | 12.62 | 9.11 | 14   |      | 0.011 |  |
| 19.03.2018 | PACKER -4 BAG FILTER | 0.785 | 319 | 11.54 | 8.46 | 9.8  |      | 0.007 |  |
| 29.03.2018 | PACKER -4 BAG FILTER | 0.785 | 326 | 11.98 | 8.6  | 16.4 |      | 0.012 |  |

**J.K. Cement WORKS, MANGROL (RAJ)**  
**AMBIENT AIR QUALITY AVERAGE RESULTS (SPM) COMMON FOR UNIT-1 & UNIT-2**  
**( ALL VALUES IN MICROGRAMS / CUBIC METER )**  
**October' 2017 - March' 2018**

| S.No. & Month              | LOCATION / PERAMETER | NEAR TIME OFFICE | NEAR THERMAL POWER PLANT | NEAR RAW MATERIAL GATE | NEAR PACKING PLANT GATE | Remarks |
|----------------------------|----------------------|------------------|--------------------------|------------------------|-------------------------|---------|
| <b>October' 2017</b>       |                      |                  |                          |                        |                         |         |
| 1                          | SPM                  | 335.8            | 384.0                    | 359.0                  | 319.0                   |         |
| 2                          | SO2                  | 17.6             | 19.5                     | 16.7                   | 12.6                    |         |
| 3                          | NOX                  | 30.6             | 33.6                     | 27.9                   | 21.8                    |         |
| 4                          | CO                   | 472.3            | 701.3                    | 596.4                  | 405.5                   |         |
| <b>November' 2017</b>      |                      |                  |                          |                        |                         |         |
| 1                          | SPM                  | 328.5            | 345.0                    | 394.2                  | 358.5                   |         |
| 2                          | SO2                  | 12.3             | 15.7                     | 19.3                   | 16.5                    |         |
| 3                          | NOX                  | 23.8             | 28.4                     | 36.7                   | 30.7                    |         |
| 4                          | CO                   | 458.0            | 572.5                    | 801.5                  | 629.8                   |         |
| <b>December' 2017</b>      |                      |                  |                          |                        |                         |         |
| 1                          | SPM                  | 343.0            | 381.5                    | 399.7                  | 369.3                   |         |
| 2                          | SO2                  | 13.0             | 16.4                     | 18.5                   | 14.3                    |         |
| 3                          | NOX                  | 26.8             | 32.3                     | 34.5                   | 29.1                    |         |
| 4                          | CO                   | 529.6            | 663.1                    | 801.5                  | 710.9                   |         |
| <b>January' 2018</b>       |                      |                  |                          |                        |                         |         |
| 1                          | SPM                  | 319.3            | 352.5                    | 377.0                  | 350.3                   |         |
| 2                          | SO2                  | 10.1             | 13.9                     | 17.0                   | 14.1                    |         |
| 3                          | NOX                  | 20.9             | 26.7                     | 31.7                   | 26.2                    |         |
| 4                          | CO                   | 462.8            | 410.3                    | 644.1                  | 572.5                   |         |
| <b>February' 2018</b>      |                      |                  |                          |                        |                         |         |
| 1                          | SPM                  | 334.7            | 350.8                    | 392.7                  | 373.8                   |         |
| 2                          | SO2                  | 12.5             | 14.0                     | 18.5                   | 16.0                    |         |
| 3                          | NOX                  | 25.0             | 27.7                     | 32.0                   | 27.4                    |         |
| 4                          | CO                   | 500.9            | 515.3                    | 787.2                  | 586.8                   |         |
| <b>March' 2018</b>         |                      |                  |                          |                        |                         |         |
| 1                          | SPM                  | 335.8            | 363.3                    | 420.3                  | 383.3                   |         |
| 2                          | SO2                  | 12.0             | 15.1                     | 21.2                   | 19.3                    |         |
| 3                          | NOX                  | 23.7             | 29.2                     | 36.1                   | 32.6                    |         |
| 4                          | CO                   | 472              | 672.7                    | 858.8                  | 787.2                   |         |
| <b>Six monthly Average</b> |                      |                  |                          |                        |                         |         |
| 1                          | SPM                  | 332.8            | 362.8                    | 390.5                  | 359.0                   |         |
| 2                          | SO2                  | 12.9             | 15.8                     | 18.5                   | 15.4                    |         |
| 3                          | NOX                  | 25.1             | 29.7                     | 33.2                   | 28.0                    |         |
| 4                          | CO                   | 482.6            | 589.2                    | 748.2                  | 615.4                   |         |

**J.K. Cement Works, Mangrol (Unit-1)**  
**Fugitive Emission Monitoring Report**  
**October' 2017 - March' 2018**

| S.No. | Month/Year | SPM ( $\mu\text{g}/\text{m}^3$ ) |                                         |                             |                       |
|-------|------------|----------------------------------|-----------------------------------------|-----------------------------|-----------------------|
|       |            | NEAR COAL<br>YARD-1              | NEAR<br>LIMESTONE<br>CRUSHING<br>SITE-1 | NEAR STACKER<br>RECLAIMER-1 | NEAR GYPSUM<br>YARD-1 |
| 1     | Oct-17     | 1488.1                           | 2213.1                                  | 2358.8                      | 2034.7                |
| 2     | Nov-17     | 1712.6                           | 2510.4                                  | 2771.9                      | 2307.4                |
| 3     | Dec-17     | 1399.3                           | 2357.7                                  | 2185.8                      | 2024.8                |
| 4     | Jan-18     | 1659.7                           | 2223.4                                  | 2389.8                      | 1978.3                |
| 5     | Feb-18     | 1570.2                           | 2402.8                                  | 2177.9                      | 2052.1                |
| 6     | Mar-18     | 1723.2                           | 2444.9                                  | 2507.1                      | 2117.5                |

**J.K. Cement Works, Mangrol (Unit-2)**  
**Fugitive Emission Monitoring Report**  
**(October' 2017 -March' 2018)**

| S.No. | Month/Year | SPM ( $\mu\text{g}/\text{m}^3$ ) |                                         |                             |                       |
|-------|------------|----------------------------------|-----------------------------------------|-----------------------------|-----------------------|
|       |            | NEAR COAL<br>YARD-2              | NEAR<br>LIMESTONE<br>CRUSHING SITE<br>2 | NEAR STACKER<br>RECLAIMER-2 | NEAR GYPSUM<br>YARD-2 |
| 1     | Oct-17     | 1556.5                           | 2055.6                                  | 1628.2                      | 1670.1                |
| 2     | Nov-17     | 1552.1                           | 1743.7                                  | 1597.2                      | 1905.7                |
| 3     | Dec-17     | 1208.0                           | 1938.7                                  | 1480.7                      | 1614.6                |
| 4     | Jan-18     | 1332.6                           | 1805.6                                  | 1666.7                      | 1632.2                |
| 5     | Feb-18     | 1500.0                           | 1606.6                                  | 1375.0                      | 1512.6                |
| 6     | Mar-18     | 1621.1                           | 1785.7                                  | 1439.4                      | 1790.6                |

J.K. Cement WORKS, Mangrol (RAJ)  
Treated Domestic Effluent Analysis Report

**October' 2017 - March' 2018**

| S.No. | PARAMETER                                        | Standards               | October-17 | November-17 | December-17 | January-18 | February-18 | March-18 |
|-------|--------------------------------------------------|-------------------------|------------|-------------|-------------|------------|-------------|----------|
| 1     | pH                                               | Between 5.5 to 9.0      | 7.48       | 7.56        | 7.5         | 7.47       | 7.52        | 7.48     |
| 2     | Chlorides as Cl                                  | Not to exceed 1000 mg/l | 120.4      | 103         | 108         | 106        | 110         | 104      |
| 3     | Total Suspended solids                           | Not to exceed 100 mg/l  | 9.8        | 3.5         | 6           | 5          | 5           | 8        |
| 4     | Biological Oxygen Demand (3 days at 27 Degree C) | Not to exceed 30 mg/l   | 14.4       | 12.6        | 12          | 14         | 12          | 16       |
| 5     | Chemical Oxygen Demand                           | Not to exceed 250 mg/l  | 74.2       | 66.8        | 70          | 82         | 76          | 88       |
| 6     | Oil & Grease                                     | Not to exceed 10 mg/l   | 4.2        | 6           | 4           | 6          | 4           | 7.2      |
| 7     | Ammonical Nitrogen (as N)                        | Not to exceed 50 mg/l   | <0.1       | <0.1        | <0.1        | <0.1       | <0.1        | 0.9      |
| 8     | Sulphide (as S)                                  | Not to exceed 2.0 mg/l  | <0.1       | <0.1        | <0.1        | <0.1       | <0.1        | <0.1     |
| 9     | Total Residual Chlorine                          | Not to exceed 1.0 mg/l  | <0.1       | <0.1        | <0.1        | <0.1       | <0.1        | <0.1     |