**Ambuja Cement**

Ref. ACH/EMD/F-13/05/2019 Dated: 30/05/2019

Dr. S. C. Katiyar
Ministry of Environment, Forest and Climate Change,
Regional Office (NCZ), 25, Subhash Road, Dehradun
Dehradun - 248001.

**Sub.**: Implementation of Environmental safeguards about Ambuja Cements Ltd., Darlaghat (H.P.) w.r.t. Half yearly Compliance Report of Environmental Clearance.

**Ref.:** Environmental Clearance Order No. J-20012/24/88-IA-II dated 12/02/1992 and J-11011/792/2007-IA II (I) dated 29/02/2008.

Dear Sir,

We are pleased to submit herewith half yearly compliance status report (i.e. for the period of October – 2018 – March - 2019) with supporting relevant/ready reference photographs, annexure and tables of Environmental Clearance Order No. J-20012/24/88-IA-II dated 12/02/1992 and J-11011/792/2007-IA II (I) dated 29/02/2008 to your kind good self in a systematic context, please.

Thanking you,

Yours Faithfully,
For **Ambuja Cements Ltd.-Unit Suli**

30/05/2019

**(Sandeep Bhimta)**
**DGM - EMD**

Copy to:
1) Regional Officer, HP State Pollution Control Board, Parwanoo ,Dist. Solan, HP
2) Regional CPCB, Lucknow, UP.

Encl.: (i) As above.
(ii) CD of above all data.

**AMBUJA CEMENTS LIMITED**
(UNIT SULI)
P. O. Darlaghat, Tehsil Arki, Distt. Solan - 171 102 (H.P.) Phone: 01796-246468, 246283 Fax: 248335, 248316
Website : www.ambujacement.com; E-mail: krishanadev.thakur@ambujacement.com; arjun.verma@ambujacement.com
(Regd. Off. : P. O. Ambuja Nagar, Taluka - Kodinar, Distt. Junagarh, Gujarat - 362 715)

COMPLIANCE OF RECOMMENDATIONS BY THE EXPERT COMMITTEE FOR PROPOSED CEMENT PLANT AT DARLAGHAT AND RELATED MINING ACTIVITIES

Annexure I

| Sr.No. | STIPULATION | IMPLEMENTATIONS |
|---|---|---|
| 12.1 | **Plant Site** | The Plant site was selected by a committee of members as per the guidelines issued by the MOEF, New Delhi, at Vill. Suli, Darlaghat, Distt. Solan (H.P) |
| 12.1.1 | Storage of Raw Material | a.) Limestone is conveyed from Kashlog Limestone Mines through 2.8 kms. long OVER LAND BELT CONVEYOR (OLBC) which is entirely covered and each transfer point of which from Crusher at Mines to Stacker at Plant is equipped with a bag filter.<br>b.) Limestone is being stored in a completely covered yard and stacked & reclaimed through an automatic operation.<br>Additives for raw mix are stored inside the covered yard and fed through mechanical means.<br>c.) Coal is being stored in a completely covered yard and stacked by Stacker (equipped with B/F) and reclaimed through Reclaimer.<br>d.) Clinker is stored in the covered stockyards, equipped with B/Fs.<br>e.) Fly-ash is stored in the RCC Silo equipped with tippler for unloading of trucks and has a pneumatic conveying system to Cement Mill.<br>f.) Gypsum and Iron Ore are stored in covered yards.<br>g.) Cement storage is in silo(s) equipped with bag filters.<br>h.) All the material transfer points are equipped with B/Fs. |
| 12.1.2 | Proper designed green belt should be provided in and around the plant Site.<br>• Special attention should be given to plantation along the roadside. | a.) A Nursery was setup on 15th July, 1992 with an annual capacity of 5,000 with qualified staff from forestry and horticulture.<br>b.) Plantation work is in progress. Approximately **170** numbers of plants and cuttings have been planted in and around the factory and mines area from October 2018 – March 2019.(Please refer the Table - 3). |
| 12.1.3 | Supply of Water | a.) Necessary Permission for water supply has been obtained from the concerned authority to lift water from Pazeena Khud.<br>b.) Clearance for Forestland has been obtained from MoEF. |
| | • Sprinkling of water | a.) Currently there is no construction at Plant. |

Plantation

Water

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| | during construction Phase.<br><br>• Provision of water to the adjoining Villages | However, we are spraying water on mine haulage road during mining activities to control fugitive emissions.<br>b.) Water connection has been provided to the adjoining villages. |
| 12.1.4 | Link Roads | All the required funds had been paid to P.W.D for widening of existing roads from Darlaghat to Factory site by State P.W.D at the cost of promoters and the work has been finished. |
| | • Provision of Parking lot at the plant site | Two areas for the parking lot have been developed for the parking of the trucks inside and out side the factory area.<br>  <br>Concreted truck yard outside the factory gate. |
| 12.1.5 | Architectural Drawings. | Wherever, possible ACL has taken care to utilize natural lighting while designing and construction of Buildings and colony. |
| 12.1.6 | Buffer Zone | Government of Himachal Pradesh, Industries Department vide notification dated 19th February, 2002 (Registered No. HP/13/SML/2001) was satisfied that it is necessary in public interest to do so. Therefore, the Governor of Himachal Pradesh directed that no case of highly polluting or hazardous industry will be processed/allowed to be set-up in the buffer zone between the cement plant of M/S Ambuja Cements Ltd. and the outer periphery of re-organized Darlaghat Wildlife Sanctuary by the Government of Himachal Pradesh except the second unit/expansion project of M/S Ambuja Cements Ltd.<br>The area of buffer zone was also specified. |
| 12.1.7 | Use of Renewable Sources of Energy. | Four Solar streetlights have been installed.<br>  |

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| | | The wind power energy generation at Darlaghat is not feasible as maximum wind speed is 28 Km./Hr. and the frequency is approximately 2% - 4% of a year. |
| 12.1.8 | Layout of the Plant | Natural drainage system has been provided and retaining walls have been made on the both sides of the plant boundary wherever necessary to prevent soil erosion.<br>Slope protection has been taken care by means of plantation. |
| **12.2** | **Mining Area** | |
| 12.2.1 | Mining Plan | The mining plan is approved by IBM Dehradun and is valid up to March 2022.<br>The implementation of mining plan is reviewed by different state government authorities from time to time. |
| 12.2.2<br>&<br>12.2.3 | Water Management<br>&<br>Water Quality | a.) Check dams & check filters have already been provided surrounding to mines area for water quality management. Except these retaining walls and Surface drains etc. are also constructed.<br><br>b.) The water quality of Gyana Khud (A rivulet passing near by Mining Area) is tested periodically at our own laboratory and results are submitted to State Pollution Control Board on monthly basis. No deviation has been observed so far in the water quality parameters.<br>  <br>**V notch at Gyana Khad.** Pl. refer table - VIII |
| 12.2.4 | Dust Control | a.) Advanced blasting technique such as use of NTD, controlled blasting are practiced to avoid dust generation and fly rock during the time of blasting.<br><br>b.) Automatic water spraying system has been provided at crusher hopper to arrest fugitive dust generated during the unloading of Dumpers.<br><br>c.) Water is continuously sprayed at haulage roads throughout the working hours with the help of water tankers. |

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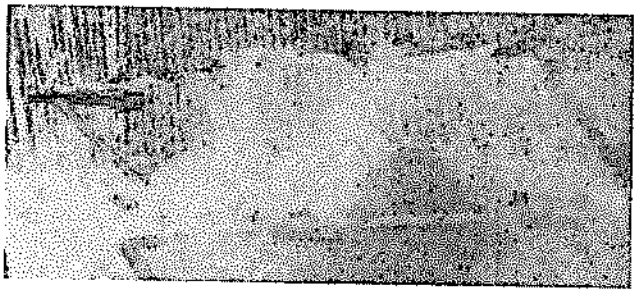
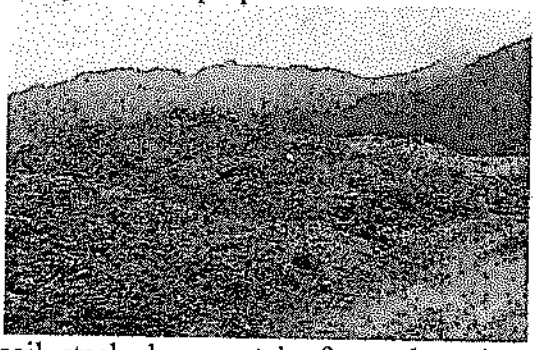
| | |  <br>Automatic water sprinkler at crusher hopper |
| 12.2.5 | Management of Over Burden | No over burden is generated from mining.<br>Required funds had been deposited with the H.P. Forest department for compensatory plantation in lieu of the existed Chil plantation. |
| 12.2.6 | Solid waste Management | There is a very less quantity of topsoil available in mining area. However, the topsoil removed during mining operation is kept separate and is used for plantation purpose.<br>  <br>Topsoil stacked separately for reclamation and rehabilitation |
| 12.2.7 | Blasting Techniques | a.) Use of IKON digital energy control system has been started to blast in critical areas. This system is more precise and accurate and generates less ground vibrations, fly rock and give better fragmentation.<br>b.) Advanced controlled blasting technique is practiced such as use of NTD, Excel, muffled blasting, optimum quantity of blasting material are practiced to avoid dust generation, fly rock, noise level and ground vibration because of the activity.<br><br>c.) Secondary blasting is avoided by use of Hydraulic rock breaker. |

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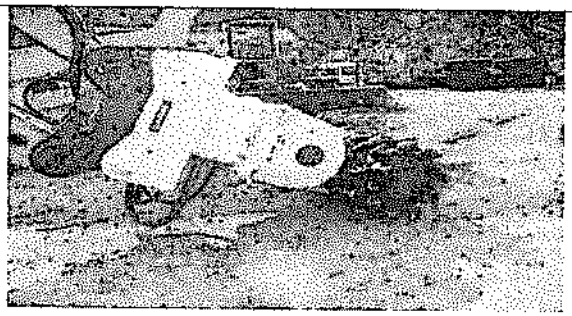
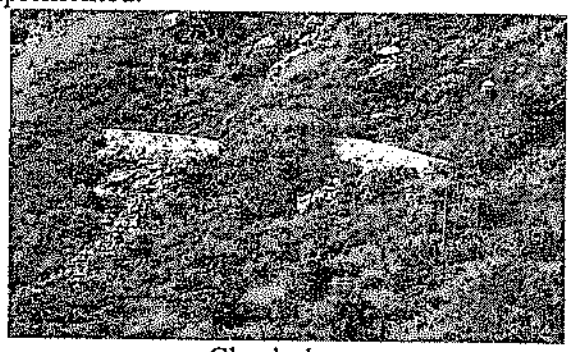
| | |  <br>Rock breaker |
| 12.2.8 | Barrier/Blasting wall | Retaining walls have been made to control possible rolling stone problem all along the haul road between villages and Mining Lease area. |
| 12.2.9 | Baseline Data | Base line data was collected and submitted by means of EIA/EMP report to MoEF and HPSPCB. |
| 12.2.10 | Soil Conservation Measures | a.) Check dams & check filters are provided surrounding to mines area for water quality management. Apart from this, retaining walls are also constructed. For the design of the check dams/check filters a study was also done through Roorkee University and recommendations are implemented.<br>  <br>Check dams<br><br>b.) Plantation along the ML area is in progress by planting mostly local species. Also area which are in non-mineralized zone and along the haul road / near mines office etc. are taken up for plantation purpose. |

**Plantation**

**Water**

**COMPLIANCE OF RECOMMENDATIONS BY THE MoEF FOR EXISTING CEMENT PLANT AT DARLAGHAT AND RELATED MINING ACTIVITIES- Oct. 2018 – Mar. 2019**

| Sr. | STIPULATION | IMPLEMENTATIONS |
|---|---|---|
| 2.I | All the recommendation as made in the report of the Committee of Experts, as mentioned in para 12.0 to 12.4 (Page-33-41 of the Expert Committee Report) should be implemented. | Compliance statement attached as Annexure I. |
| 2.II | The State Government has earmarked an area of 1400 square kms in Kibbar, Lahul and Spiti District, for declaring it as a Wildlife Sanctuary. Necessary notification for this proposed wildlife sanctuary should be issued within a period of six months. | HP State Government has notified for Kibber Wildlife Sanctuary vide Notification No. FFE-B-F(6)-29/99 dated 1.11.99 |
| 2.III | An area of 20 square kms. should be added to the existing Majathal sanctuary (situated close to the mining area of the company) and necessary notification should be made in this regard within a period of six months. | Forest Department Notification Shimla-2, dated 11th March, 2002 No.-B-F(6)23/99 – Whereas the Governor of Himachal Pradesh after due consideration of the view that areas mention in the schedule were of adequate ecological, faunal, floral, geo-morphological, natural and zoological significance. Therefore, in exercise of powers vested to him under section 18(1) of Wild Life (Protection) Act, 1972, the Governor, Himachal Pradesh declared his intention to constitute the area comprising of 17.55 sq. km. (related to Survey of India, survey sheet No. 53A/15/SE on scale 1:50000) as extension to the Existing Majathal Wildlife Sanctuary notified vide Notification No. FFE-B-F (6)23/99 dated 23-10-1999. |
| 2.IV | An inter-disciplinary committee to monitor and over-see the implementations of the recommendations of the Experts Committee should be constituted by the State Government. This monitoring Committee should consist of experts drawn from various disciplines such as forestry, environment, mining, irrigation and health etc. A representative of the | A committee has been formed by HP State government that meets to monitor the recommendations by Expert Committee. |

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| | Ministry of Environment and Forests, Government of India should also be associated with the Committee. | |
| 2.V | The particulate emission from the various stacks should conform to the stipulated standards of 150 milligram per cubic meter. Necessary pollution control equipment such as ESP/Bag filters should be installed. | The particulate emission is controlled through 52 nos. of B/F(s)/ 3 ESP(s) and 1 Glass Bag House in the process.<br>The emission from different stacks maintained below the prescribed limit.<br><br>**Please refer Table I** |
| 2.VI | Fugitive emissions should be controlled to avoid any nuisance problems outside the plant. A green belt of adequate width and density should be provided all around the cement plant, as also in the mining areas. | Plantation all along the ML area is in progress. Plantation is in progress all along the plant boundary and colony, wherever the space is available.<br><br>**Please refer Table - 3 for plantation.** |
| 2.VII | Affected families should properly be rehabilitated in consultation with the State Government. | No family has been displaced at plant site. However, in the mining area, village Chakhru (Lying within safety zone) is rehabilitated at the cost of company by means of providing land and constructing houses over there. |
| 2.VIII | Adequate number of monitoring stations should be provided (net less than 4) in consultation with the State Government for monitoring of ambient levels of particulates in the plant and mining area and data recorded. The information on stack emissions of particulate and fugitive emissions including the data of ambient air quality in the area should be furnished once in three months to the State Pollution Control Board and once in six months to the Ministry of Environment and Forests, Government of India. | a.) Seven ambient air quality monitoring stations namely Khata, Mines Dormitory, Rathoh, Mangoo, Chandi, Pacheur, and Batedh are fixed within the aerial distance of 5 kms. from plant and mines and are monitored twice in week. **Pl. refer Table – 4.**<br><br>b.) A mobile monitoring van is also in use to check Ambient Air Quality randomly within 5 kms. Radius of plant and mines. **Pl. refer Table – 7.**<br><br>c.) A well equipped laboratory has also been established for analysis.<br><br>d.) All the monitored values of Environmental Parameters as stipulated are reported to HP SPCB on monthly basis and Half yearly to MoEF (NR). |
| 2.IX | A baseline health survey specially for pulmonary functions should be done in | a.) A baseline health survey was conducted with particular reference to Pulmonary function for surrounding villagers of plant |

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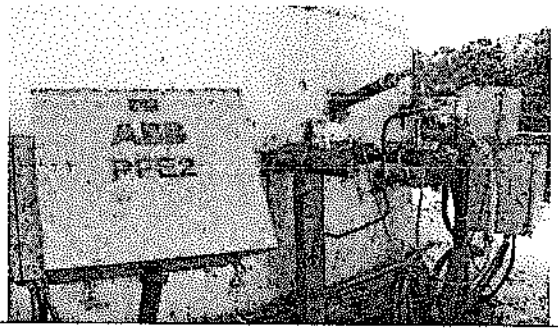
| | the adjoining region of plant and mining areas and this should be followed up by periodic tests after the commissioning of the cement plant and the mining areas in order to monitor the impact of any on the health of the local inhabitants. | and mines and report submitted to MoEF and HP SPCB in 1995.<br>b.) A follow up survey for the same was conducted in July 2000, which found no deviation in the health status of the examinees.<br>c.) In addition to this, a health status survey was conducted for the bovines and caprines of this area and the same was submitted to MoEF and HP SPCB in 1996. |
| 2.X | Adequate measures for the control of noise should be taken so as to keep the noise levels below 85 dB in the working environment. | a.) The noise level in side factory area is varying between 62dB to 85 dB in different places. However, noise level in the colony area varies in between 40 to 55 dB.<br><br>b.) Special attention has been given to machinery selection, erection and maintenance.<br><br>c.) In-House mechanical improvement is under continuous process to reduce the noise level further.<br><br>**Please refer Table - V** |
| 3. | The conditions stipulated may be varied or new conditions may be added or the clearance revoked, if necessary in the interest of environmental protection and if there is any change in the project profile, non-satisfactory implementation of the stipulated conditions etc. | a.) Additional stipulation was put by HPSPCB to install a continuos monitoring system for GBH emission in their letter for final consent to Operate for Plant in October, 1995 and the same was installed and operational since December, 1996.<br>Due to some technical problems this equipment was replaced with a new emission monitor EM 919 from Baltec Systems. We have also replaced this system with new emission monitor i.e. (ABB) Durag DR 290.<br><br>b.) Online stack emission monitoring equipments have been installed at Clinker Cooler ESP, Cement Mill ESP 1 & 2, Coal Mill Bag Filter and Cement Mill-3 Bag Filter sections.<br>  |

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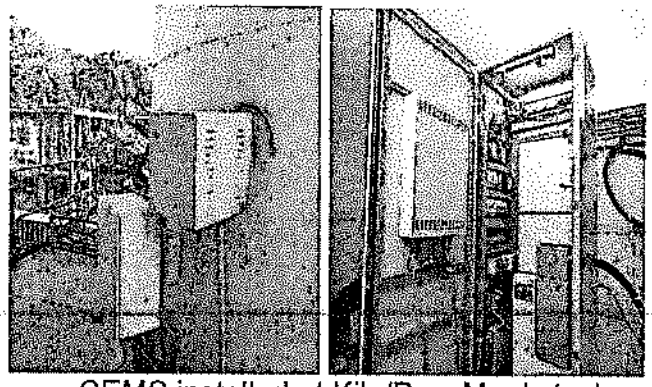
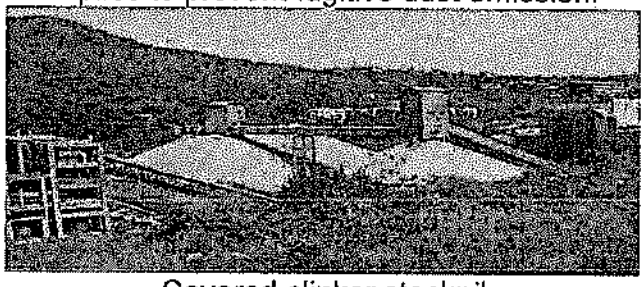
| | | CEM at GBH stack |
| 4. | The stipulations will be implemented, among others, under the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981 the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991. | All the applicable stipulations are complied as per the act. |
| 5. | Necessary funds should be provided in the project for the implementation of the above mentioned conditions and environmental safeguards. The funds ear-marked for the environmental protection measures should not be diverted for other purposes and year-wise expenditure should be reported to this Ministry. | **a.) A total amount of Rs.62 corers had been spent for procurement, erection, commissioning of different APCE and implementing different environmental safeguards.**<br>**b.) Expenditure for environmental protection and other environment related activities during the period from October 2018 – March 2019.**<br><br>**Please refer Table - VI.** |
| 6. | An Environmental Management Cell with suitable qualified people to carryout various functions should be set up under the control of a senior executive who will report directly to the Head of the Organization to monitor the pollution levels and implement the stipulations and other co-ordinate with the inter-disciplinary committee as envisaged in condition No. IV. | A separate Environmental Management Division is in operation since the inception of the plant with suitable qualified personnel. The division is further strengthen by appointment of a senior executive who directly reports to Unit Head. |

**Compliance of Conditions laid down by MoEF for Expansion of Cement Plant (2.0 MTPA to 2.6 MTPA Clinker) at Village Suli Oct. 2018 to Mar. 2019**

**A. SPECIFIC CONDITIONS**

| Sl. No. | Condition | Compliance Status |
|---|---|---|
| i | Continuous stack monitoring facilities for all stacks and adequate air pollution control systems e.g. electrostatic precipitators (ESP) to clinker cooler and cement mill; glass bag house to raw mill and kiln; bag filters to raw mill hoppers, blending silo/kiln feed, clinker storage, coal mill system, packing plant, transfer points etc. shall be provided to keep emissions levels below 100 mg/Nm$^3$. Storage of raw materials viz. limestone, coal, clinker shall be in closed roof sheds covered stockpiles. Water sprinkling arrangement shall be made in the raw material stock yard and cement bag loading areas. | **a.) CEMS** has been installed at GBH attached to Raw Mill and Kiln section. CPM have been installed at Clinker Cooler, cement Mill 2 & 3 and Coal mill.<br>  <br>CEMS installed at Kiln/Raw Meal stack<br><br>**b.)** Stack emissions are regularly monitored and the results are submitted to HP SPCB on monthly basis and to the Regional Office of MoEF at Chandigarh on six monthly basis.<br>**c.)** Each and every material transfer point is equipped with a bag filter.<br>**d.)** All the raw materials are stored in covered area.<br>**e.)** Water sprinkling arrangements have been made wherever required.<br>Monthly stack monitoring data is enclosed as **Table - I** |
| ii | The company shall install dust collectors to control dust emissions from the transfer points, loading and unloading areas. A closed clinker system shall be adopted to control fugitive emissions. Dust collection system and water spray system shall be provided in raw material stock yard and cement bag loading areas to control fugitive emissions. | a.) Each and every material transfer point is equipped with a bag filter to control the dust emissions.<br>b.) Clinker is stored in completely covered stockpiles to prevent fugitive dust emission.<br>  <br>Covered clinker stockpiles |

**Compliance of Conditions laid down by MoEF for Expansion of Cement Plant (2.0 MTPA to 2.6 MTPA Clinker) at Village Suli Oct. 2018 to Mar. 2019**

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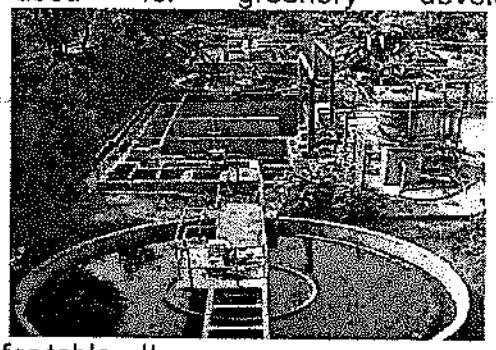
| iii | Secondary fugitive emissions shall be controlled within the prescribed limits and regularly monitored. Guidelines / Code of practice issued by the CPCB in this regard shall be followed. | Guidelines / Code of practice issued by the CPCB in this regard is followed to control secondary fugitive emissions. |
| iv | Total existing water requirement from Pazeena Khud (a tributary of River Sutluj) is 1,200$m^3$/day and shall not exceed the limit even after expansion. Close circuit system shall be adopted for cooling. No wastewater shall be discharged from the process outside the premises and all the treated wastewater from Sewage Water Reclamation Plant (SWRP) shall be recycled and reused in the cement manufacturing process and/or for dust suppression, green belt development and other plant related activities etc. 'Zero' discharge shall be adopted. SWRP shall be further augmented as per the requirement of the expansion project. | Being the "Dry Process" of cement manufacturing, no waste water is generated from the process. However the domestic waste water generated from residential facilities as well as from the offices is being treated at SWRP. Treated water thus generated is reused for greenery development, dust suppression, cooling makeup etc. and the biological sludge generated is used for greenery development.  Pl. refer table - II |
| v | Efforts shall be made to reduce impact of the transport of the raw materials and end products on the surrounding environment. Due to enhanced movement of trucks due to expansion of project and other cement industries in the same region, the industry may consider the feasibility of setting up of the conveyor belt transportation system for the raw materials as well as final product to decongest the traffic in the hill region in collaboration with the Central Road Research Institute, New Delhi. | a.) All possible efforts are being made to reduce impact of the transport of the raw materials and end products on the surrounding environment. All the trucks used in transportation of raw materials semi finished/finished products are covered with tarpaulin. **New multi axel trucks have been introduced for transportation of the raw materials semi finished/finished products.** |
| vi | All the Cement Dust collected from pollution Control devices shall be 100% recycled and reused in the process and used for cement manufacturing. Treated STP Sludge from SWRP shall be used for green belt development. | All the particulate matter collected through air pollution control devices is automatically recycled in the process. The biological sludge generated is used for greenery development. |

**Compliance of Conditions laid down by MoEF for Expansion of Cement Plant (2.0 MTPA to 2.6 MTPA Clinker) at Village Suli Oct. 2018 to Mar. 2019**

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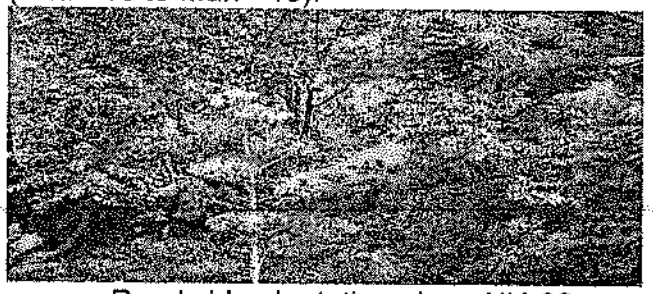
| vii | All the fly ash shall be utilized as per flyash Notification, 1999 subsequently as amended in 2003. | All the fly ash is being utilized as per flyash Notification no. SO 2623 (E) dated 6th November 2008. |
| viii | An effort shall be made to use of high calorific hazardous waste in the cement kiln and necessary provisions shall be made accordingly. | High calorific hazardous waste of Shiwalik Solid Waste , is being used in the cement kiln and necessary provisions have already provided. |
| ix | Green belt shall be developed in and around the expansion project in atleast 25 % of the area as per the CPCB guidelines in consultation with local DFO. Plantation shall also be done along the road side between Ropar & Darlaghat in collaboration with the State forest department due to regular plying of trucks carrying flyash and cement. | a.) Plantation is an integral part of our activities. Plantation of more than 170 Plants / saplings has been raised in and around Plant and Mining area (Oct. - 18 to Mar. - 19).<br>  <br>Road side plantation along NH-88<br>**Green Belt Development report has been submitted by HFRI on dated 10th November 2017.** |
| x | The environmental clearance is subject to obtaining clearance under the wild life (Protection) Act, 1972 from the competent authority. Conservation plan for the schedule I Fauna shall be prepared in consultation with Chief Wild life warden, Government of H.P. and necessary funds for implementation of the same shall be allocated. | Wildlife conservation plans have been prepared in consultation with State Forest & Wildlife Department and the same are authenticated by PCCF (Wildlife) vide letter dated WL(Misc)-73/Mining/VI/8295 dated 14/01/2014 and WL(Misc)-73/Mining/VI/7473 dated 24/12/2013. The allocated necessary funds for the purpose have already earmarked in the conservation plan and Rs. 9710000/- (Rupees ninety seven lakh ten thousand only) have already been submitted for the wildlife conservation activities vide letter no. ACL/CPRP.AFFAIRS/WL CESS/2015 dated 17/01/2015. Copies of wildlife conservation plan including their action plans have been forwarded vide letter no. ACH/EMD/WLCP/11/2015 dated 23/11/2015. Rs. 47.90 lacs has been submitted as part of commitment in WLCP to State Wildlife Forest Deptt. through CAMPA Account (RTGS) on 18/03/2016 for year 2016. Recently we have submitted Rs. 10 lacs to State Wildlife Forest Deptt. through CAMPA Account. Total amount submitted Rs. 1.55 crores for WLCPs. |

**Compliance of Conditions laid down by MoEF for Expansion of Cement Plant (2.0 MTPA to 2.6 MTPA Clinker) at Village Suli Oct. 2018 to Mar. 2019**

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| xi | The environmental clearance is subject to the final orders of the Hon"ble Supreme Court of India in the matters of Goa Foundation vs. UOI in Civil Writ Petition No. 460 of 2004 as may be applicable to this project. | Final orders of the Hon"ble Supreme Court of India Shall be complied as may be applicable to the project. |
| **B. GENERAL CONDITIONS** | | |
| i | The project authority must adhere to the stipulations made by H.P. State Pollution Control Board (HP SPCB) and State government. | All the stipulations made by H.P. State Pollution Control Board (HP SPCB) and State government shall be adhered. |
| ii | No further expansion or modification of the plant shall be carried out without prior approval of this ministry. | Noted and complied. |
| iii | The gaseous and particulate matter emission from various units should conform to the standards prescribed by the State Pollution Control Board. At no time, the particulate emissions from the cement plant and captive power plant (CPP) shall exceed 100 mg/Nm3. Inter locking facility shall be provided between pollution control equipment and the process operation so that in the event of pollution control equipment not working, respective unit(s) is shut down automatically. | Emissions from the Cement Plant is being maintained well below the limits prescribed by State Pollution Control Board. Inter locking facility has been provided between pollution control equipment and the process operation so that in the event of pollution control equipment not working, respective unit(s) shut down automatically.<br>In addition to this we also conduct third party stack monitoring by SGS India Ltd. |
| iv | Ambient air quality including ambient noise levels shall be monitored at different locations including fence of sanctuary and must not exceed the standard stipulated under EPA or by the State authorities. Monitoring of ambient air quality and stack emission shall be carried out regularly in consultation with HP SPCB and report submitted to the Board quarterly and to the Ministry's Regional Office at Chandigarh half yearly. Continuous stack monitoring system shall be installed. | Monitoring is being carried out on regular basis. Ambient Air Quality and Stack monitoring is carried out and the results are submitted to the State Pollution Control Board on monthly basis and to the Ministry's Regional Office at Dehradun half yearly. Continuous stack monitoring systems are installed at six stacks i.e. GBH, Cooler ESP, Cement Mill 1, 2 & 3 ESP/Bag Filter and Coal Mill Bag Filter. |

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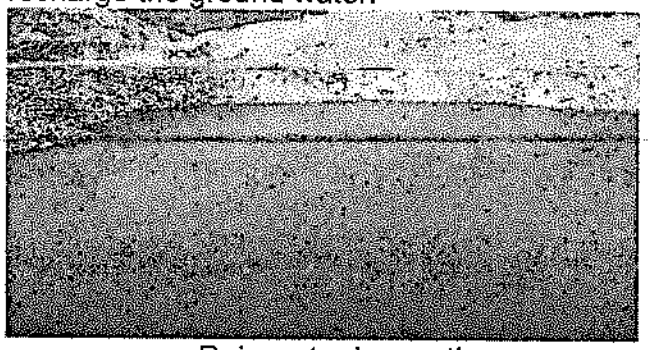
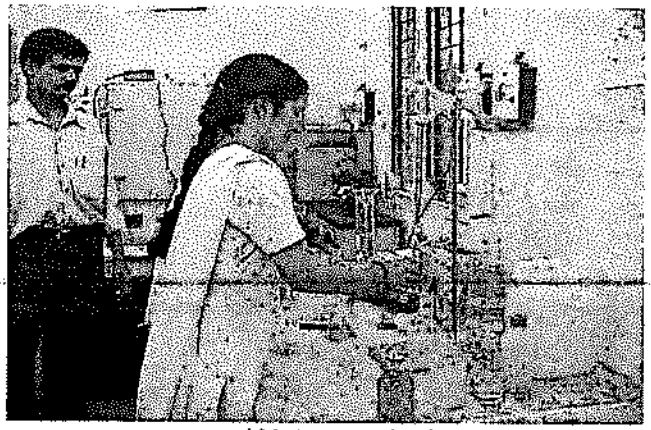
| | |  <br>Monitoring of GBH stack<br>Ambient air quality including ambient noise levels at sanctuary area is being carried out. |
| v | Industrial waste water shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. The treated waste water shall be utilized for plantation purpose. | No industrial waste water is being generated from the production process. However waste water generated from offices and residential facilities is being treated at Sewage Treatment Plant and the treated water thus generated is used for greenery development and process cooling makeup etc. |
| vi | The over all noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise level shall conform to the standards prescribed under Environmental (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (Day time) and 70 dBA (Night time). | a.) All the precautionary measures have been taken to keep the noise levels within the prescribed limits.<br><br>b.) Physical & biological barriers have been provided at suitable/available locations. |
| vii | Proper house keeping and adequate occupation health programmes must be taken up. All the persons working in the sensitive area shall wear protective covers. Occupation health surveillance programme shall be done on regular basis and records maintained. The program must include lung function and sputum analysis test once in six months. | Proper house keeping and adequate occupation health programmes are taken up. All the persons working in the sensitive area have been provided with the required Personal Protective Equipments (PPEs). Regular checkup of the employees is being done and records are maintained. |

| | | |
|---|---|---|
| | |  <br>Road sweeping machine |
| viii | The company must harvest surface as well as rain water from the roof top of the buildings proposed in the expansion projects and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water. | Suitable drainage systems are provided to recharge the ground water.<br>  <br>Rain water harvesting |
| ix | The company shall follow all the recommendations mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP) especially all the major stacks shall be provided with continuous emission monitoring for particulate matter. | As per the recommendations mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP), six stacks have been provided with continuous emission monitoring for particulate matter. |
| x | The company shall under take eco development measures including community welfare measures in the project area. | Ambuja Cement Foundation has been set up for taking care of the community development / welfare measures in the project area.<br>  <br>Distribution of plants to community |

**Compliance of Conditions laid down by MoEF for Expansion of Cement Plant (2.0 MTPA to 2.6 MTPA Clinker) at Village Suli Oct. 2018 to Mar. 2019**

| | | |
|---|---|---|
| xi | The project proponent shall also comply with all the environmental protection measures and safe guards recommended in the EIA/EMP. | All the environmental protection measures and safe guards recommended in the EIA/EMP are being considered for its implementations there of. |
| xii | A separate environmental management cell with full fledged laboratory facilities to carry out various management and monitoring functions should be set up under the control of Senior Executive. | A separate environmental management cell with full fledged laboratory facilities to carry out various management and monitoring functions have been set up under the control of Senior Executive.<br>  <br>Water analysis |
| xiii | As proposed, the project authorities shall earmark Rs.2.5 Crores towards environmental pollution control measures to implement the conditions stipulated by the Ministry of Environment & Forest as well as the State Government. An implementation schedule shall be submitted to the Regional Office at Chandigarh to implement all the conditions stipulated herein. The funds so provided should not be diverted for any other purposes. | All the conditions stipulated herein the clearance letter as well as by the State Government are being implied thereof. |
| xiv | The Regional Office of this Ministry at Chandigarh/Central Pollution Control Board/HP SPCB will monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation should be submitted to them regularly. | We are facilitating the officials from the Regional Offices of this Ministry at Dehradun/Central Pollution Control Board/HP SPCB to monitor the stipulated conditions. A six monthly compliance report is already being submitted to the Regional office of Ministry at Dehradun regular basis. |
| xv | The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure | There will be some modifications in the existing process hence no new land development will take place. The date of financial closure shall be |

| | | |
|---|---|---|
| | and final approval of the project by concerned authorities and date of commencing the land development work. | informed to the Regional office as well as Ministry in due course of time. |
| xvi | The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the HP SPCB and may also be seen at web site of the Ministry of Environment & Forest at http:/envfor.nic.in. This should be advertised within seven days from the date of issue of clearance letter at least in two local news papers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the regional office. | It has been advertised in two local news papers that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the HP SPCB and may also be seen at web site of the Ministry of Environment & Forest at http:/envfor.nic.in. A copy of the same has already been submitted to the regional office at Dehradun. |

Suli Plant Consent to operate 2.6 MTPA Clinker and 1.6 MTPA Cement, consent conditions:

| | | |
|---|---|---|
| a) | The Compliance to the norms for emission as per prescribed in schedule – 1 of environment (protection) Rules, 1986 as may be prescribed by the Board | Complied |
| b) | Noise and ambient air quality to be maintained within Ambient Air Quality Standards for noise as specified in schedule III of aforesaid Rules. | Complied |
| c) | The effluent (domestic/industrial) conforming to the limits as prescribed in the Environment (Protection) Rules, 1986 as amended from time to time. | Complied |
| ➢ | Pollution Control Devices provided by the unit shall be operated and maintained to achieve the norms as prescribed in Environment (Protection) Act, 1986 as amended from time to time. | Being complied |
| ➢ | The State Board reserves the right to revoke/review and alter the conditions of consent as the case may be. | Noted |
| ➢ | The unit shall not undertake any expansion activity / or additional product in the existing unit without obtaining consent from State Board. | The expansion/ or addition product in the existing unit shall be undertaken after obtaining consent from State Board. |
| ➢ | The unit shall comply with the provisions of the e-waste (Management & Handling), 2011 | Complied |
| ➢ | Unit shall not pollute any water source in the area like drinking, pond or well etc. | Complied |
| ➢ | No debris shall be thrown along the roads or water course and the debris shall be either utilized or disposed in designated dumping sites. | Noted |
| ➢ | The project proponent shall be liable to clear any past /current liability on account of difference in consent fees if detected at any subsequent stage. | Noted |
| ➢ | The emission/effluent shall be got sampled and tested by the unit as well as concerned Regional Officer as prescribed and further renewal shall be dependent up on the results of samples so collected and tested. | Noted |
| ➢ | The samples of effluent/emission shall be collected by the Regional Officer concerned and the unit shall also get the self monitoring of effluent/emission done within the month and convey the results to the State Board. | Noted |
| ➢ | This consent is subject to the condition that there shall be no violation of orders of any Hon'ble Court/Nation Green Tribunal and unit shall comply with revised norms of emission vide notification no. G.S.R. 497 (E) dated 10th May 2016 as amended from time to time. | Noted |
| ➢ | This consent is subject to condition that unit shall not operate until unit have valid consent for the mining activity and shall not manufacture products beyond the | Complied |

Table - I

# Weekly Average of Stack Monitoring Results

(FROM Oct. 2018 - Mar. 2019)

| MONTHS | Average PM Value in mg./Nm3 | | | | | |
|---|---|---|---|---|---|---|
| | Glass Bag House | Cooler ESP | Cement Mill ESP II | Coal Mill B/F | E-Mill B/F | Main Crusher B/F |
| Oct-18 | 16.7 | 28.3 | 16.0 | 10.9 | 13.6 | 24.5 |
| | 19.6 | 17.7 | 18.8 | 15.2 | 7.5 | 23.9 |
| | 15.0 | 18.1 | 14.6 | 12.8 | 9.3 | 17.2 |
| | 13.7 | 26.5 | 25.6 | 21.5 | 10.9 | 21.8 |
| Nov-18 | 10.6 | 16.2 | 15.9 | 20 0 | 12.5 | 16.1 |
| | 14 5 | 21.1 | 12.9 | 23.8 | 14.6 | 20 4 |
| | 11 7 | 18.3 | 22.1 | 15.6 | 10.8 | 12.1 |
| | 16.9 | 19.1 | 10.7 | 18.6 | 9.2 | 18.1 |
| Dec-18 | 11.3 | 17.8 | 11.5 | 12.9 | 11.3 | 21.9 |
| | 10.70 | 19.20 | 8.0 | 10.60 | 10.00 | 10.40 |
| | 12.30 | 20.50 | 15.9 | 19.70 | 18.70 | 14.60 |
| | 9.80 | 22.40 | 14.5 | 13.60 | 13.10 | 17.90 |
| Jan-19 | 15.20 | 22.70 | 19.8 | 16.50 | 14.20 | 23.9 |
| | 9.50 | 18.80 | 12.5 | 19.10 | 12.70 | 20.6 |
| | 12.60 | 17.60 | 20.0 | 11.40 | 10.60 | 17.0 |
| | 14.7 | 20.4 | 18.2 | 17.0 | 13.1 | 22.8 |
| Feb-19 | 18.2 | 28.5 | 6.4 | 11.3 | 15.7 | 17.3 |
| | 13.2 | 24.9 | 10.1 | 14.2 | 8.7 | 23.0 |
| | 21.5 | 27.1 | 20.9 | 19.6 | 14.4 | 19.2 |
| | 20.9 | 29.5 | 11.5 | 14.5 | 16.9 | 21.8 |
| Mar-19 | 20.6 | 21.7 | 8.9 | 16.7 | 10.3 | 19.0 |
| | 19.5 | 27.6 | 13.5 | 20.1 | 14.1 | 16.5 |
| | 18.3 | 24.4 | 10.7 | 14.2 | 8.3 | 20.4 |
| | * | * | 9.4 | * | * | 17.4 |

Note: * Out of Operation

Table - 2

## Inlet and Outlet Sewage Water Characteristics (Monthly Average)

(From October 2018 to March 2019)

| MONTHS | INLET | | | OUTLET | | |
|---|---|---|---|---|---|---|
| | pH | BOD | TSS | pH | BOD | TSS |
| Oct-18 | 8.10 | 256.80 | 355.00 | 7.50 | 12.00 | 12.70 |
| Nov-18 | 8.10 | 255.00 | 354.20 | 7.50 | 12.00 | 12.00 |
| Dec-18 | 8.10 | 254.50 | 257.00 | 7.50 | 11.00 | 12.00 |
| Jan-19 | 8.10 | 256.80 | 356.70 | 7.50 | 11.20 | 12.90 |
| Feb-19 | 8.10 | 256.00 | 360.00 | 7.50 | 10.70 | 12.40 |
| Mar-19 | 8.10 | 253.30 | 360.40 | 7.50 | 10.70 | 12.80 |

Except pH, all parameters are in mg/lit.

Table - 3

# TOTAL NOS. OF PLANTS PLANTED
## (FROM October 2018TO March 2019)

| Area of Plantation | Oct-18 | Nov-18 | Dec-18 | Jan-19 | Feb-19 | Mar-19 | Total |
|---|---|---|---|---|---|---|---|
| Inside Plant Area | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Around Plant Area | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Within Colony Area | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Inside Mines Area | 0 | 0 | 0 | 0 | 50 | 120 | 170 |
| Total | **0** | **0** | **0** | **0** | **50** | **120** | **170** |

Total plantation inclusive cuttings,Saplings,Shrubs and replacement etc.

**Table - IV**

## Monthly Average of Ambient Air Quality Monitoring Results (Suli Plant)

## (PM 10, PM 2.5, $SO_2$ and $NO_2$ Concentration in µg/m3) (For Oct. 2018 - Mar. 2019)

| MONTH | Khata | | | | Pacheaur | | | | Batedh | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PM 10 | PM 2.5 | SO2 | NO2 | PM 10 | PM 2.5 | SO2 | NO2 | PM 10 | PM 2.5 | SO2 | NO2 |
| Oct. - 18 | 71.73 | 31.53 | 5.10 | 11.49 | 61.56 | 26.24 | 4.01 | 12.56 | 68.20 | 30.59 | 5.06 | 14.06 |
| Nov. - 18 | 66.72 | 29.01 | 5.38 | 15.38 | 75.87 | 37.44 | 5.06 | 14.19 | 45.48 | 17.59 | 3.40 | 10.93 |
| Dec. - 18 | 50.67 | 33.54 | 6.10 | 14.85 | 49.17 | 31.37 | 5.20 | 12.81 | 44.65 | 29.78 | 3.93 | 10.54 |
| Jan. - 19 | 39.03 | 27.71 | 4.25 | 8.13 | 42.93 | 31.63 | 5.25 | 8.63 | 37.49 | 33.36 | 5.38 | 8.94 |
| Feb. - 19 | 52.92 | 33.38 | 6.16 | 13.59 | 57.22 | 30.66 | 5.76 | 11.66 | 51.07 | 29.03 | 5.48 | 9.54 |
| Mar. - 19 | 70.64 | 37.93 | 5.06 | 17.14 | 48.22 | 19.17 | 3.40 | 10.61 | 69.22 | 31.93 | 5.68 | 16.75 |

| MONTH | Khata | | | | Pacheaur | | | | Batedh | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Lead µg/m3 | Nickel ng/m3 | Arsenic $ng/m^3$ | CO $mg/m^3$ | Lead µg/m3 | Nickel ng/m3 | Arsenic $ng/m^3$ | CO $mg/m^3$ | Lead µg/m3 | Nickel ng/m3 | Arsenic ng/m | CO mg/m |
| Oct-18 | ND | ND | ND | 0.49 | ND | ND | ND | 0.58 | ND | ND | ND | 0.71 |
| Nov-18 | ND | ND | ND | 0.57 | ND | ND | ND | 0.41 | ND | ND | ND | 0.86 |
| Dec-18 | ND | ND | ND | 0.48 | ND | ND | ND | 0.36 | ND | ND | ND | 0.65 |
| Jan-19 | ND | ND | ND | 0.54 | ND | ND | ND | 0.45 | ND | ND | ND | 0.74 |
| Feb-19 | ND | ND | ND | 0.67 | ND | ND | ND | 0.54 | ND | ND | ND | 0.86 |
| Mar-19 | ND | ND | ND | 0.83 | ND | ND | ND | 0.49 | ND | ND | ND | 0.91 |

## Monthly Average of Ambient Air Quality Monitoring Results Mining Area

(Lead, Nickel, Arsenic and CO) (From October 2018 To March 2019)

| MONTH | Mines Dormitory | | | | Rathoh | | | | Mangoo | | | | Chandi | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Lead µg/m3 | Nickel ng/m3 | Arsenic ng/m$^3$ | CO mg/m$^3$ | Lead µg/m3 | Nickel ng/m3 | Arsenic ng/m$^3$ | CO mg/m$^3$ | Lead µg/m3 | Nickel ng/m3 | Arsenic ng/m$^3$ | CO mg/m$^3$ | Lead µg/m3 | Nickel ng/m3 | Arsenic ng/m$^3$ | CO mg/m$^3$ |
| Oct-18 | ND | ND | ND | 0.52 | ND | ND | ND | 0.63 | ND | ND | ND | 0.5 | ND | ND | ND | 0.34 |
| Nov-18 | ND | ND | ND | 0.62 | ND | ND | ND | 0.58 | ND | ND | ND | 0.64 | ND | ND | ND | 0.4 |
| Dec-18 | ND | ND | ND | 0.71 | ND | ND | ND | 0.63 | ND | ND | ND | 0.52 | ND | ND | ND | 0.41 |
| Jan-19 | ND | ND | ND | 0.68 | ND | ND | ND | 0.56 | ND | ND | ND | 0.47 | ND | ND | ND | 0.4 |
| Feb-19 | ND | ND | ND | 0.73 | ND | ND | ND | 0.62 | ND | ND | ND | 0.52 | ND | ND | ND | 0.38 |
| Mar-19 | ND | ND | ND | 0.86 | ND | ND | ND | 0.74 | ND | ND | ND | 0.62 | ND | ND | ND | 0.44 |

Table - 5

## MONTHLY NOISE MONITORING RESULTS (INSIDE PLANT) AT AMBUJA CEMENTS LTD. - UNIT HIMACHAL

(From October 2018 to March 2019)

| MONITORING LOCATION | Oct-18 | | Nov-18 | | Dec-18 | | Jan-19 | | Feb-19 | | Mar-19 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DAY | NIGHT | DAY | NIGHT | DAY | NIGHT | DAY | NIGHT | DAY | NIGHT | DAY | NIGHT |
| TIME OFFICE | | | | | | | | | | | | |
| With Vehicular Movement | 74.5 | 72.8 | 78.7 | 72.5 | 74.9 | 72.6 | 79.8 | 77.2 | 69.3 | 67.8 | 75.6 | 70.2 |
| Without Vehicular Movement | 63.2 | 58.9 | 66.3 | 65.9 | 65.5 | 59.3 | 63.6 | 59.5 | 64.6 | 62.5 | 61.9 | 57.5 |
| | | | | | | | | | | | | |
| Coal Crusher | 70.4 | 68.6 | 68.1 | 67.6 | 73.1 | 69.7 | 69.3 | 63.1 | 78.9 | 76.4 | 70.7 | 68.9 |
| GBH (Near MPSS) | 86.7 | 84.5 | 81.3 | 80.1 | 80.3 | 78.4 | 72.1 | 70.7 | 71.7 | 69.2 | 81.2 | 80.3 |
| Raw Mill | 84.9 | 84.2 | 84.9 | 84.3 | 84.6 | 83.9 | 84.7 | 83.9 | 85 | 84.8 | 84.8 | 84.6 |
| Cement Mill Area (Out Side) | 83.5 | 81.6 | 83.4 | 81.9 | 81.4 | 79.5 | 78.3 | 75.7 | 80.1 | 78.6 | 85.1 | 81.6 |
| In front of CCR | 78.1 | 71.4 | 78.5 | 76.3 | 75.8 | 72.7 | 70.1 | 69.5 | 73.4 | 72.1 | 78.5 | 76.5 |
| Inside Compressor House1 (Near MPSS) | 87.4 | 86.9 | 81.4 | 78.2 | 86.4 | 85.6 | 87.4 | 86.1 | 87 | 86.9 | 89.3 | 87.6 |
| Outside Compressor House1 (Near MPSS) | 82.8 | 81.8 | 82.1 | 81.5 | 81.7 | 78.1 | 73.7 | 72.4 | 71.3 | 70.7 | 80.5 | 79.2 |
| Inside Compressor House2 (Near Cement Mill) | 89.1 | 87.6 | 84.5 | 81.2 | 87.6 | 86.5 | 88.9 | 87.7 | 88.6 | 87.2 | 88.1 | 87.5 |
| Outside Compressor House2 (Near Cement Mill) | 85.3 | 84.9 | 81.6 | 78.1 | 78.9 | 75.8 | 78.6 | 76.9 | 70.4 | 69.9 | 86.8 | 84.7 |
| Blower House (Near Coal Mill) | 84.06 | 82.3 | 88.9 | 85.9 | 85.4 | 84.2 | 87.9 | 86.8 | 84.2 | 82.6 | 85.6 | 84.5 |
| Blower House (Below Blending Silo) | 82.8 | 81.5 | 83.2 | 82.6 | 84.1 | 82.7 | 86.6 | 85.4 | 73.6 | 71.8 | 83.3 | 80.8 |
| Blower House (Below Cement Silo 1) | 81.5 | 76.1 | 85.2 | 84.3 | 82.8 | 80.3 | 85.8 | 84.7 | 85.4 | 83.6 | 80.1 | 79.4 |
| Blower House (Below Cement Silo 2) | 83.3 | 80.9 | 83 | 80.8 | 84.9 | 83.5 | 88.1 | 87.5 | 87.1 | 86.9 | 83.5 | 81.6 |
| MAIN GATE | | | | | | | | | | | | |
| With Vehicular Movement | 75.4 | 74.8 | 76.4 | 72.9 | 76.8 | 73.6 | 76.7 | 74.3 | 77.3 | 75.7 | 74.8 | 70.2 |
| Without Vehicular Movement | 55.7 | 52.3 | 69.1 | 67.5 | 61.5 | 53.4 | 61.4 | 58.8 | 62.5 | 61.2 | 58.1 | 56.5 |

Noise Level Unit - dB(A)

Table - VI

## Environmental Expenditure – SULI (October, 2018 – March, 2019)

| Sr. No. | Environmental Expenditure Area | Capital/Recurring | Amount(Rs) |
|---|---|---|---|
| 1 | a) Sound Barriers/ Acoustics, road works, plant flooring, shed provision etc.<br>b) Any other important environmental asset/ expenditure | Capital<br>Capital | 2900000 |
| 2 | Air pollution control equipments maintenance, STP maintenance, Analyzers and other monitoring equipments maintenance. | Recurring | 9397846 |
| 3 | Monitoring and analysis of environmental parameters, studies, purchase of small new equipments ,plantation, fees, salaries etc. | Recurring | 8976712 |
| 4 | Air pollution control equipments running expenses | Recurring | 79340995 |
| 5 | Mines – construction of check dams/ check filters, Toe walls etc, Water spraying on haul roads, use of IKON, plantation, soil conservation works, water harvesting etc. | Recurring | 2005342 |
| 6 | Depreciation on Environmental assets | Recurring | 9615616 |
| 7 | Community development works | Capital<br>Recurring | 3493777<br>20689243 |
| | **TOTAL** | | **136419531** |

**Thirteen Crore Sixty Four Lacs Nineteen Thousand Five Hundred Thirty One Only.**

WATER / WASTE WATER SAMPLE

Sample ID:49646 - Analysis Completion:01/08/2018

Cement. / LAB Inward : 13765

Sector-4
Parwanoo, Distt. Solan
Parwanoo-173220
Tele:01792-232540

## TEST REPORT

Test Report No. : 13765 Date: 01/08/2018

| | |
|---|---|
| 1. Name of the Customer | : Ambuja Cements Limited (Suli Plant) - 10034 |
| 2. Address | : Cement,Village - Suli, P.O. - Darlaghat, Tehsil - Arki,, District - Solan, Himachal Prade Suli-171102, Taluka : Arki, District : Solan(Parwanoo), GIDC : Not In SIDC |
| 3. Nature of Sample | : WAT-Water Act(Legal), (Insp Type : ROU-Routine Visit) |
| 4. Sample Collected By | : Anil Kumar , JEE |
| 5. Quantity of Sample Received | : |
| 6. Code No. of the Sample | : 49646 |
| 7. Date & Time of Collection & Inwarding | : 24/06/2018 , (1500 to 1500) & 03/07/2018 |
| 8. Date of Start & Completion of Analysis | : 04/07/2018 & 01/08/2018 |
| 9. Sampling Point | : final outlet of STP ~ - |
| 10. Flow Details (Remarks) | : - |
| 11. Mode of Disposal | : On Land |
| 12. Ultimate Receiving Body | : 0 |
| 13. Temperature on Collection | : - & pH Range on pH Strip :6-8 |
| 14. Carboys Nos for | : 1 & Color & Appearance :Colorless |
| 15. Water Consumption & W.W.G (KLPD) | : Ind :800.000 , Dom :400.000 & Ind :0.000 , Dom :150.000 |

| Sr | Parameter | Unit | Test Method | Range of Testing | Result |
|---|---|---|---|---|---|
| 1 | Suspended Solids | - | - | - | 3.0 mg/l |
| 2 | Biochemical Oxygen Demand (BOD) | - | | - | 2.8 mg/l |
| 3 | COD | - | - | - | 24.0 mg/l |
| 4 | Oil and Grease | - | - | - | Nil |
| 5 | pH | - | - | - | 8.46 |

Laboratory Remarks : All parameters results are within the prescribed limit- Dr. T.B.Singh
Principal Scientific Officer By:94-pcb_94 Dt.: 01/08/2018

Chaman Thakur,SO

Field Observation :

Note :

1. * - These parameters are covered under the scope of NABL.
2. The results refer only to the tested samples and applicable parameters. Endorsement of products is neither inferred nor implied.
3. Samples will be destroyed after 10 days from the date of issue of test report unless otherwise specified.
4. This report is not to be reproduced wholly or in part or used in any advertising media without the permission of the Board in writing.
5. The Board is not responsible for the authenticity for the samples not collected by the Board's officials.
6. Total liability of our laboratory is limited to the invoiced amount. Any dispute arising out of this report is subject to Himachal Pradesh Jurisdiction only.
7. Permissible Limits: as per Schedule VI of EPA Rules, 1986 as ammended by Second and Third ammendment 1993 for Effluents

Table - 7

## AMBIENT AIR QUALITY IN SURROUNDING VILLAGES
(FROM Oct. 2018 TO Mar. 2019)

| Date | Village | Concentration (ug/m3) | |
|---|---|---|---|
| | | PM2.5 | PM10 |
| | | IS-5182-p-23 | IS-5182-p-23 |
| 06-10-2018 | Banjar | 27.9 | 61.2 |
| 13-10-2018 | Saug | 17.3 | 48.6 |
| 20-10-2018 | Kasyalu | 21.6 | 51.8 |
| 27-10-2018 | Banli | 16.4 | 56.1 |
| 03-11-2018 | Ashlu | 29.4 | 52.3 |
| 10-11-2018 | Sanedh | 16.3 | 45.8 |
| 17-11-2018 | Dhobtan | 19.7 | 53.6 |
| 24-11-2018 | Gyana | 24.5 | 56.1 |
| 08-12-2018 | Bughar | 19.2 | 54.6 |
| 15-12-2018 | Serjeri | 26.4 | 58.1 |
| 22-12-2018 | Jablu | 18.6 | 61.3 |
| 29-12-2018 | Sameli | 10.2 | 42.8 |
| 05-01-2019 | Banjan | 21.6 | 63.4 |
| 12-01-2019 | Dabi | 10.4 | 52.1 |
| 19-01-2019 | Kakda | 26.8 | 65.6 |
| 26-01-2019 | Kasyalu | 20.6 | 48.9 |
| 02-02-2019 | Saryanj | 14.8 | 42.6 |
| 09-02-2019 | Badog Hanu | 11.6 | 38.4 |
| 16-02-2019 | Braili | 39.78 | 44.14 |
| 23-02-2019 | Dhamog | 40.2 | 64.6 |
| 02-03-2019 | Devthi | 21.86 | 49.2 |
| 09-03-2019 | Nauni | 26.7 | 41.33 |
| 16-03-2019 | Parnu | 14.6 | 39.2 |
| 23-03-2019 | Karada | 35.24 | 45.83 |

Table - 8

## Monthly Average of Gyana Khad Water Quality Analysis Report
(From October 2018 to March 2019)

| MONTH | SAMPLING POINTS | PARAMETERS | | | |
|---|---|---|---|---|---|
| | | pH | TSS | TDS | DO |
| Oct-18 | 1 | 7.3 | 31.4 | 300.0 | 4.50 |
| | 2 | 7.6 | 43.9 | 334.0 | 4.00 |
| | 3 | 7.4 | 38.8 | 317.1 | 4.60 |
| | 4 | 7.3 | 34.6 | 312.0 | 4.60 |
| Nov-18 | 1 | 7.3 | 38.5 | 333.9 | 4.30 |
| | 2 | 7.8 | 50.8 | 374.2 | 3.80 |
| | 3 | 7.6 | 44.4 | 353.0 | 4.40 |
| | 4 | 7.5 | 38.4 | 346.0 | 4.70 |
| Dec-18 | 1 | 7.3 | 31.1 | 342.1 | 5.50 |
| | 2 | 7.5 | 48.2 | 357.5 | 4.60 |
| | 3 | 7.2 | 42.5 | 346.1 | 5.90 |
| | 4 | 7.2 | 39.5 | 342.3 | 6.00 |
| Jan-19 | 1 | 7.2 | 33.8 | 351.0 | 5.80 |
| | 2 | 7.6 | 45.0 | 369.2 | 4.90 |
| | 3 | 7.4 | 38.1 | 348.0 | 5.60 |
| | 4 | 7.3 | 34.0 | 344.0 | 5.80 |
| Feb-19 | 1 | 7.4 | 29.5 | 303.0 | 6.30 |
| | 2 | 7.7 | 43.0 | 347.1 | 5.20 |
| | 3 | 7.5 | 37.5 | 325.9 | 6.20 |
| | 4 | 7.4 | 32.0 | 314.3 | 6.60 |
| Mar-19 | 1 | 7.4 | 30.3 | 319.4 | 5.10 |
| | 2 | 7.6 | 43.2 | 359.0 | 4.40 |
| | 3 | 7.4 | 38.3 | 347.0 | 5.00 |
| | 4 | 7.4 | 34.9 | 335.1 | 5.20 |
| | AVERAGE | **7.4** | **38.4** | **338.4** | **5.1** |

Except pH all the parameters are in mg/lit.

### Sampling Points

1. 500mts. Upstream of First Nallah before joining Gyana Khad.
2. 500mts. Upstream of Second Nallah before joining Gyana Khad.
3. V-Notch installed in Gyana Khad. (SE Side of ML Area)
4. 500mts. Downstream from V-Notch of Gyana Khad.