



GUJARAT STATE ELECTRICITY CORPORATION LIMITED

Wanakbori Thermal Power Station, Taluka:Galteshwar, Dist:Kheda- 388239. Ph. 91-2699-235522
Fax: 91-2699-235607, e-mail: wtps.ceg@gebmail.com;wtps.se-op.gsecl@gebmail.com,Website: www.gsecl.in
AN ISO-9001:2015, ISO-14001:2015, OHSAS 18001:2007 Certified Power Plant
CIN: U40100GJ1993SGC019988

By RPAD & E-mail: apccfbhopal@gmail.com;rowz.bpl-mef@nic.in

Ref. No.: GSECL/WTPS/EEEC/Env/800MW/EC/ 2721

Date: 25 APR 2019

To,
The Addl. Principal Chief Conservator of Forests (C),
Ministry of Environment & Forest,
Regional Office (Western Region),
Kendriya Paryavaran Bhavan,
Link Road no. 3, E-5, Ravishankar Nagar,
Bhopal - 462 016. (MP)

Sub: Submission of compliance report of Environmental Clearance of 800 MW WTPS extension unit no. 8.

Ref: Environmental Clearance issued by MoEF & CC vide letter No J-13012/108/2008-IA. II(T) dated 02.12.2013 & amendment dated 04.07.2014 for 800 MW project extension at WTPS.

Dear Sir,

In context to the captioned subject and as per general condition no. XVII of Environment Clearance for 800 MW project extension at Wanakbori TPS, please find enclosed herewith half yearly compliance report as on March 2019 along with details/documents.

Thanking you,

Yours Faithfully,

(Pramod M Parmar)
Chief Engineer (C&O)
GSECL: WTPS

Encl.: As above.

Copy to;

1. The Chairman
Central Pollution Control Board
Parivesh Bhawan, CBD-cum-office complex
East arjunnagar, Delhi-110032
2. The Chairman
Gujarat Pollution Control Board
Paryavaran Bhawan, Sector 10-A
Gandhinagar-382010
3. Chief Engineer (P&P/Gen/Fuel/Civil), CO, Vadodara, By mail
4. ACE (Project), WTPS, By mail
5. SE (Mech/Elect/Civil project/Fuel/Civil), WTPS, By mail

GSECL's compliance to 'Environmental Clearance' No. J-13012/108/2008-IA.II(T) dated 02.12.2013 and amendment dated 4.7.2014 for 1x800 MW Extension Unit No.8 at Wanakbori TPS

No	Condition	GSECL's compliance as on March 19
(A) Specific Conditions :		
i.	<p>Old and inefficient units which have outlived the plant life viz. 210 MW units of Wanakbori Unit- 1, 2 and 3; and 120 MW units at Gandhinagar and Ukai shall be phased out and dismantled within the next three years or before commissioning of Wanakbori Extension Unit No. 8 (1x800 MW), whichever is earlier.</p> <p>Amendment of this condition: 2(a) The 5X 120 MW units located at Gandhinagar, Ukai and Sikka TPP(s) would remain shut down and coal meant for these units would be diverted to meet the need of 800 MW unit at Wanakbori till Machhakata Coal Block gets EC & FC and becomes operational within three years of getting EC & FC (whichever is later), otherwise, the Bank Guarantee of Rs. 100 crores, furnished by M/s GSECL would be forfeited. 2(b) In case EC and/or FC is not accorded to Machhakata Coal Block, GSECL shall dismantle the 5X120 MW units located at Gandhinagar, Ukai and Sikka. M/s GSECL shall submit an understanding in this regard.</p>	<p>Gandhinagar TPS unit 1&2 of 120 MW dismantling work is under progress vide order no. MSTC/VAD/17-18/2864 dated 19/2/18. Sikka TPS unit no. 1&2 of 120 MW phase out proposal is approved and dismantling work is under progress .</p>
ii.	<p>Life Cycle Assessment (LCA) of old units 4 to 7 of 210 MW each shall be carried out either by Central Electricity Authority (CEA) or any other competent agency and vetted by CEA. In case the units are found fit for efficient operation after proposed overhauling, the ESPs shall be replaced or retrofitted such that particulate emission does not exceed 50 mg/Nm³.</p> <p>Amendment of this condition: 2(c) M/s. GSECL would get all the 7X210 MW units of Wanakbori studied by experts to assess their residual life and ensure necessary replacements/retrofitting of Electrostatic precipitators so the particulate emission does not exceed 50 mg/Nm³.</p>	<p>Retrofitting work of ESP in # 2 is completed on 8/5/2018. Annual overhauling of unit 1 (ESP) carried out from 22.12.2018 to 13.01.2019. Tender no: GSECL/PP/PII/ ESP Retrofitting / Phase-III / 1284 is published for Retrofitting of Electrostatic Precipitators (ESPs) of 210 MW Unit No. 4, 5 & 6 of WTPS.</p>
iii.	<p>Scheme for implementation for harnessing solar power within the premises of the plant particularly at available roof tops shall be formulated and status of implementation shall be submitted to the Regional Office of the Ministry from time to time.</p>	<p>6.1 KW solar hybrid plant in service at VIP guest house. 2.9 KW solar-wind hybrid plant in service at ash park. 3X10 KW roof top solar plant in service at Adm. office. 300 LPD, 6 nos. & 400 LPD, 5 nos. of solar water heaters are provided.</p>
iv.	<p>Vision document specifying prospective plan for the site shall be formulated and submitted to the Ministry within six months.</p>	<p>Vision document of GSECL-WTPS is formulated & submitted vide this office letter no. GSECL/WTPS/EEEC/Env/800MW/EC/3644 dated 24/6/15.</p>
v.	<p>A long term study on radio activity and heavy metals contents on coal to be used shall be carried out through a reputed institute. Thereafter mechanism for an in-</p>	<p>Radio activity and heavy metals contents in coal & flyash testing will be done through any outside reputed laboratory in due course.</p>

No	Condition	GSECL's compliance as on March 19
	built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.	
vi.	Fugitive emissions shall be controlled to prevent impact on agricultural or non-agricultural land.	Dry fog dust suppression systems at coal transferring points and water sprinklers / fire hydrants are provided around coal storage area in coal plant to avoid fugitive dust dispersion. Naktivell sapling is planted in all ash dyke area to control fugitive ash pollution.
vii.	Sulphur and ash contents in the coal to be used in the project shall not exceed 0.6 % and 34 % respectively at any given time. In case of variation of coal quality at any point of time, fresh reference shall be made to MOEF for necessary action.	Will be implemented in due course.
viii.	A single flue stack of 275 m height shall be installed and with continuous online monitoring equipments shall be installed for monitoring SOx, NOx and RSPM (PM2.5 & PM10). Exit velocity of flue gases shall not be less than 22m/sec. Mercury emissions from stack shall also be monitored on periodic basis.	A single flue RCC stack of 275 meter height is constructed. Installation of continuous online monitoring analysers at stack, for SOx, NOx & PM parameters are in progress. Exit velocity of flue gases will not be less than 22 m/sec. Mercury emissions from stack emission of unit 8 will be monitored periodically.
ix.	No ground water shall be extracted for use in operation of the power plant even in lean season.	It is confirmed that no ground water will be used for generation of electricity in unit no. 8 of 800 MW.
x.	Source sustainability study of water requirement shall be carried out by an institute of repute. The study shall also specify the source of water for meeting the requirement during lean season. The report shall be submitted to the Regional Office of the Ministry within six months.	GSECL WTPS is taking water from Mahi right bank canal for existing units. During lean period water is utilized from jack well situated in river. Irrigation department has granted principal approval for water requirement of extension unit. Construction of new jackwell for unit no. 8, is under progress by M/s. BHEL.
xi.	Hydro geological study of the area shall be reviewed annually and report submitted to the Ministry. No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the setting up / operation of the power plant.	Hydro geological study for river intake water system carried out by M/s. BHEL PSWR through M/s. GS Geoenviron pvt. ltd., Dehradun.
xii.	Minimum required environmental flow suggested by the Competent authority of the State Govt. shall be maintained in the Channel/ Rivers (as applicable) even in lean season.	Noted. Water is being drawn from canal or jackwell only as per statutory directive issued by Irrigation department, GoG.
xiii.	COC of 5.0 shall be adopted.	COC of 5.0 will be maintained for cooling water.
xiv.	Additional soil for leveling of the proposed site shall be generated within the sites (to the extent possible) so that natural drainage system of the area is protected and improved.	Necessary care is being taken to use excavated soil for leveling and maintain natural drainage system of the area.
xv.	Provision for installation of FGD shall be provided for future use. High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm ³ .	Letter of Award issued to M/s. Datang Technologies and Engineering India Pvt Ltd, Mumbai-14 ,for supply, installation testing and commissioning of FGD system for 1 X 800 MW, WTPS vide GSECL/PP/PII/FGD/WTPS38/277 dated 16.3.2019. Completion period is 30 months.

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xvi.	Adequate dust extraction system such as cyclones/ bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.	Dry fog dust control system is provided in coal plant. For new Thyssen Krupp system, order is placed to M/s. F. Harley & CO. Pvt. Ltd., for dry fog dust control system.
xvii.	Fly ash shall not be used for mine void filling or agricultural purpose.	Fly ash will not be used for mine void filling or agricultural purpose.
xviii.	Utilization of 100% Fly Ash generated shall be made from 4th year of operation of the plant. Status of implementation shall be reported to the Regional Office of the Ministry from time to time.	Separate silo of 2X1200 MT capacity will be provided to store & dispatch dry fly ash from unit no. 8. 90% civil work is completed & mechanical work is in progress. 100% Fly ash utilization will be ensured and the report of the same will be submitted to Regional office, MoEF.
xix.	Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Unutilized fly ash shall be disposed off in the ash pond in the form of slurry form. Mercury and other heavy metals (As,Hg, Cr, Pb etc.) will be monitored in the bottom ash as also in the effluents emanating from the existing ash pond. No ash shall be disposed off in low lying area.	Fly ash from ESP in dry form will be collected in silo. Unutilized fly ash shall be disposed off as wet / ash slurry form in ash dyke, if require and necessary monitoring will be done.
xx.	Ash pond shall be lined with HDPE/LDPE lining or any other suitable impermeable media such that no leachate takes place at any point of time. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached.	Existing ash dyke will be utilized for unit no. 8. However adequate safety measures will be implemented to protect the ash dyke from getting breached.
xxi.	For disposal of bottom ash in abandoned mines (if proposed to be undertaken) it shall be ensured that the bottom and sides of the mined out areas are adequately lined with clay before Bottom Ash is filled up. The project proponent shall inform the State Pollution Control Board well in advance before undertaking the activity.	Not applicable.
xxii.	Old abandoned ash dyke shall be appropriately capped and rehabilitated so that no possible fugitive emission of fly ash takes place. Rehabilitation of abandoned Ash Pond shall ensure that ecological restoration is physically manifested within a period of three years and accordingly action plan formulated and details submitted to the Regional Office of the Ministry and the State Pollution Control Board	Balance work of raising of bund of dyke 1&2 is in progress at site.
xxiii.	Three tier green belt shall be developed all around Ash Pond over and over Green Belt around the plant boundary.	10754 tree plantations carried out along ash dyke boundaries.
xxiv.	Green Belt consisting of 3 tiers of plantations of native species around plant and at least 100 m width shall be raised. Wherever 100 m width is not feasible a 50 m width shall be raised and adequate justification shall be submitted to the Ministry. Tree density shall not be less than 2500 per ha with survival rate not less than 75 %.	10754 nos. of tress are grown & being maintained in open plot near entrance of ash dyke area with fencing wall.
xxv.	The project proponent shall also adequately contribute in the development of the neighboring villages. Special package with implementation schedule for free potable drinking water supply in the nearby villages and schools shall be undertaken in a time bound manner.	As per previous submitted as on March 19 Since there is no issue of water in the villages and schools we can conclude this point.

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xxvi	Action plan for R&R (as applicable) with package for the project affected persons be submitted and implemented as per prevalent R&R policy within three months from the date of issue of this letter.	No R&R (Rehabilitation and Resettlement) is involved as the project is within existing premises.
xxvii	An amount of Rs 16.60 Crores shall be earmarked as one time capital cost for CSR programme. Subsequently a recurring expenditure of Rs 3.30 Crores per annum shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within one month along with road map for implementation.	Approval from CO received on date 05.07.2018 for demand of nearby various schools & villages. Some works are completed and remaining is under progress.
xxviii	While identifying CSR programme the company shall conduct need based assessment for the nearby villages to study economic measures with action plan which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people besides development of fodder farm, fruit bearing orchards, vocational training etc. can form a part of such programme. Company shall provide separate budget for community development activities and income generating programmes. This will be in addition to vocational training for individuals imparted to take up self-employment and jobs.	The approval from CO is received on dated 05.07.2018, for requirement of nearby village. Construction of overhead water storage tank at village kuni is in progress. Mean while we have completed following. 1) Providing & fixing paver blocks under CSR activity at various villages near WTPS. 2) Ambulance is procured and handed over to public health centre, menpura village.
xxix	It shall be ensured that in-built monitoring mechanism for the schemes identified is in place and annual social audit shall be got done from the nearest government institute of repute in the region. The project proponent shall also submit the status of implementation of the scheme from time to time.	Demand of nearby villages and schools, civil & non civil work is carried out. The process will be implemented in phase manner & under progress.
(B) General Conditions :		
i.	The treated effluents conforming to the prescribed standards only shall be re-circulated and reused within the plant. There shall be no discharge outside the plant boundary except during monsoon. Arrangements shall be made that effluents and storm water do not get mixed.	Treated effluent from unit 8 will be reused within plant. Effluent and storm water drain is constructed separately at site.
ii.	A sewage treatment plant shall be provided (as applicable) and the treated sewage shall be used for raising greenbelt/plantation.	Will be implemented.
iii.	Rainwater harvesting should be adopted. Central Groundwater Authority/ Board shall be consulted for finalization of appropriate rainwater harvesting technology within a period of three months from the date of issue of clearance and details shall be furnished to the Regional Office of the Ministry.	Rainwater harvesting system is adopted at Wanakbori TPS. Dug cum bore wells (i.e. percolating well) are constructed. M/s. CGAB is informed vide this office letter no. WTPS/EEEC/Env/800MW/5516 dated 14/10/2014.
iv.	Adequate safety measures shall be provided in the plant area to check/minimize spontaneous fires in coal yard, especially during summer season. Copy of these measures with full details along with location plant layout shall be submitted to the Ministry as well as to the Regional Office of the Ministry.	Sufficient water sprinklers and fire hydrants are provided in coal yard to control spontaneous fires in coal yard area. Unit 8 fire hydrant & sprinkler system installation work under progress.
v.	Storage facilities for auxiliary liquid fuel such as LDO and/ HFO/LSHS shall be made	LDO & FO for unit no. 8 is stored in minimum risk area. Onsite

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	in the plant area in consultation with Department of Explosives, Nagpur. Sulphur content in the liquid fuel will not exceed 0.5%. Disaster Management Plan shall be prepared to meet any eventuality in case of an accident taking place due to storage of oil.	emergency plan is prepared & updated periodically for covering entire eventuality due to present storage of oil. License no. P/HQ/GJ/15/5503 (P417219) is granted for petroleum class-C by GoI, Petroleum & explosive safety organization Vadodara for unit 8.
vi.	Regular monitoring of ground water level shall be carried out by establishing a network of existing wells and constructing new piezometers. Monitoring around the ash pond area shall be carried out particularly for heavy metals (Hg, Cr,As,Pb) and records maintained and submitted to the Regional Office of this Ministry. The data so obtained should be compared with the baseline data so as to ensure that the ground water quality is not adversely affected due to the project.	Monitoring of ground water quality around the ash pond / plant is carried out and records are maintained. The analysis report of bore well water sample around plant is enclosed herewith.
vii.	Monitoring surface water quantity and quality shall also be regularly conducted and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall be undertaken.	Monitoring / quality analysis of upstream & downstream surface water of Mahi river is being carried out regularly. Surface raw water of river Mahi is drawn as per intimation of Irrigation department. All record are maintained thereof.
viii.	First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	Facilities for First aid and sanitation are available at site.
ix.	Noise levels emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 75 dBA from the source. For people working in the high noise area, requisite personal protective equipment like earplugs/ear muffs etc. shall be provided. Workers engaged in noisy areas such as turbine area, air compressors etc shall be periodically examined to maintain audiometric record and for treatment for any hearing loss including shifting to non-noisy / less noisy areas.	For people working in the high noise area in existing units, requisite personal protective equipment like earplugs/ear muffs etc. is provided as per GSECL policy. Periodical medical examination & audiometry test of workers are being done. Records thereof are maintained as per statutory requirement. PPE for construction safety is provided by concern contractor. Necessary requisite maintained by BHEL doctor appointed at site.
x.	Regular monitoring of ground level concentration of SO ₂ , NO _x , PM _{2.5} & PM ₁₀ and Hg shall be carried out in the impact zone and records maintained. If at any stage these levels are found to exceed the prescribed limits, necessary control measures shall be provided immediately. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the Regional Office of this Ministry. The data shall also be put on the website of the company.	Regular ambient air monitoring is being carried out through agency and records being maintained and also submitted to the Regional Office, MoEF. The five locations of the monitoring stations in & around WTPS and frequency of monitoring once in a month are decided. The data is put on the GSECL website alongwith compliance report.
xi.	Provision shall be made for the housing of construction labour (as applicable) within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Proper temporary housing and adequate infrastructure facilities is supervised and provided to labours.
xii.	The project proponent shall advertise in at least two local newspapers widely	Advertisement is published in local newspapers. A copy of

No	Condition	GSECL's compliance as on March 19
	circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned within seven days from the date of this clearance letter, informing that the project has been accorded environmental clearance and copies of clearance letter are available with the State Pollution Control Board/Committee and may also be seen at Website of the Ministry of Environment and Forests at http://envfor.nic.in .	advertisement is earlier submitted vide letter no. GSECL/PP/PMI/WKB-8/EC compliance/537 dated 21/7/14.
xiii.	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, ZilaParisad / Municipal Corporation, urban local Body and the Local NGO, if any, from whom suggestions/representations, if any, received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	Copy of env clearance letter is sent to Zilaparisad& nearby panchayat vide letter no. WTPS/SE(Ope)/800MW/3790 dated 17/7/14. The copy of environment clearance is put on GSECL web site.
xiv.	An Environmental Cell shall be created at the project site itself and shall be headed by an officer of appropriate seniority and qualification. It shall be ensured that the head of the cell shall directly report to the head of the organization.	Environment Cell is already functioning at WTPS site.
xv.	The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM (PM2.5& PM10), SO2, NOx (ambient levels as well as stack emissions) shall be displayed at a convenient location near the main gate of the company in the public domain.	Work is in progress for installation of online opacity meter & SOx/NOx analyzer instruments in stack of unit no. 8, to measure stack gas emission. The online result will be configured and displayed in existing unit display board provided outside the main gate of the company.
xvi.	The environment statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of the Ministry by e-mail.	Copy of Environmental statement for year 2018-19 in Form-V was submitted to GPCB vide letter no. GSECL/WTPS/EEEC/Env/1445-V/2482 dated 15/4/2019.
xvii.	The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Central Pollution Control Board and State Pollution Control Board. The project proponent shall upload the status of compliance of the environment of the environmental clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests.	Six monthly reports is submitted regularly to MOEF&CC- Bhopal, CPCB-Delhi, GPCB-Gandhinagar and put on GSECL web site.
xviii.	Regional Office of the Ministry of Environment & Forests will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report and Environment	A complete set of documents including Environmental Impact Assessment Report and Environment Management Plan along with the additional information as requested vide MoEF Bhopal letter

No	Condition	GSECL's compliance as on March 19
	Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring. Project proponent will up-load the compliance status in their website and up-date the same from time to time at least six monthly basis. Criteria pollutants levels including NOx (from stack & ambient air) shall be displayed at the main gate of the power plant.	no.: 4-2/2014(ENV)/505 dated 26/2/2014 is submitted earlier vide this office letter no. GSECL/PP/PMI/WKB-8/EC compliance/537 dated 21/7/14. Real time online stack emission data of unit 1 to 7 is being displayed on LCD TV at main gate of TPS.
xix.	Separate funds shall be allocated for implementation of environmental protection measures along with item-wise break-up. These cost shall be included as part of the project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.	The copy of Environment management expenditure report of year 2018-19 is submitted to MoEF & CC, Bhopal vide this office letter no. WTPS/EEEC/Env/1445Q/2599 dated 18/4/2019. Necessary funds are allotted and expensed for environmental protection measures.
xx.	The project authorities shall inform the Regional Office as well as the Ministry regarding the date of financial closure and final approval of the project by the concerned authorities and the dates of start of land development work and commissioning of plant.	LOI & LOA are issued for unit no. 8 to M/s. BHEL, New Delhi vide letter no. PP/SE(PII)/WKB-8/636 dated 5/9/2014 and no. PP/SE(P II)/ WKB-8/683 dated 26/9/2014. Area grading & land development civil work is completed and Mechanical/Electrical/Instrument erection work is under progress.
xxi.	Full cooperation shall be extended to the Scientists/Officers from the Ministry / Regional Office of the Ministry at Bangalore / CPCB/ SPCB who would be monitoring the compliance of environmental status.	Full co-operation is extended to MoEF, CPCB and GPCB.



GUJARAT STATE ELECTRICITY CORPORATION LIMITED

Wanakbori Thermal Power Station, Taluka:Gateshwar, Dist:Kheda- 388239. Ph. 91-2699-235522

Fax: 91-2699-235607, e-mail: wtps.ceg@gebmail.com; wtps.se-op.gsecl@gebmail.com, Website: www.gsecl.in

AN ISO-9001:2015, ISO-14001:2015, OHSAS 18001:2007 Certified Power Plant

CIN: U40100GJ1993SGC019988

AMBIENT AIR QUALITY RESULT DURING OCTOBER 18 TO MARCH 19

Location	Parameters	Unit	Oct 18	Nov 18	Dec 18	Jan 19	Feb 19	March 19
Timba	Particulate Matter-10 (PM 10)	microgram / m3	82	78	84	88	80	68
	Particulate Matter-2.5 (PM 2.5)	microgram / m3	53.1	55.1	51.4	50.5	47.2	42.1
	SO ₂	microgram / m3	18.1	19.8	14.2	17.4	14.4	15.8
	NOx	microgram / m3	13.4	16.3	12.8	13.2	10.0	14.2
Sevaliya	Particulate Matter-10 (PM 10)	microgram / m3	59	63	55	58	54	10.5
	Particulate Matter-2.5 (PM 2.5)	microgram / m3	36.3	38.9	27.8	35.1	27.5	8.2
	SO ₂	microgram / m3	14.9	16.8	11.9	12.4	9.9	73
	NOx	microgram / m3	12.8	13.6	10.5	11.9	9.0	50.4
Coal plant in power house	Particulate Matter-10 (PM 10)	microgram / m3	77	84	79	91	77	44
	Particulate Matter-2.5 (PM 2.5)	microgram / m3	49.2	56.6	44.4	56.1	44.6	17.3
	SO ₂	microgram / m3	29.6	27.1	31.5	32.9	23.2	11.1
	NOx	microgram / m3	19.2	15.2	18.7	20.5	14.5	7.5
Balasinor	Particulate Matter-10 (PM 10)	microgram / m3	49	54	51	53	50	14.3
	Particulate Matter-2.5 (PM 2.5)	microgram / m3	20.5	21.9	19.5	21.0	18.3	7.1
	SO ₂	microgram / m3	13	14.4	12.8	10.2	8.8	11.1
	NOx	microgram / m3	9.3	8.2	9.8	10.5	8.3	7.5
Hostel in colony	Particulate Matter-10 (PM 10)	microgram / m3	40	50	39	46	42	40
	Particulate Matter-2.5 (PM 2.5)	microgram / m3	26.6	16.4	15.7	17.9	11.1	10.2
	SO ₂	microgram / m3	13.7	9.5	11.4	9.2	8.2	14.3
	NOx	microgram / m3	7.3	7.1	6.1	6.3	5.9	7.1

Note: Ambient air quality is monitored by M/s. Greenleaf Envirotech Pvt. Ltd. ,Surat which is NABL accredited laboratory.

BOREWELL WATER SAMPLE ANALYSIS REPORT

Name of the party : M/s. Gujarat State Electricity Corporation Limited,
Wanakbori Thermal Power Station, Taluka-Galteshwar, District-Kheda: 388239.

Sample collected by : M/s. Greenleaf Envirotech Private Limited, Surat

Work Order no. : WTPS/Tech/WO/RFQ-40009/EEEC/WTE-69/17/7239 dated 16/11/17.

Analysis report for : Under ground water sample

Date of sampling : 19/3/2019

Mode of sampling : Grab

Testing method : IS 10500 & APHA standard method & IS 3025.

Sr. No.	Parameter	Unit	Source of Borewell water sample		Desirable limit
			Borewell no. 17 at sangole road	Borewell no. 11 at colony gate	
1.	Colour	Hazen unit	<5	<5	5
2.	Turbidity	N.T.U.	Nil	Nil	5
3.	pH	pH unit	7.53	7.57	6.5 to 8.5
4.	Total hardness as CaCO ₃	mg/lit	414	351	300
5.	Calcium as (Ca)	mg/lit	59	63	75
6.	Magnesium as (Mg)	mg/lit	46	50	30
7.	Copper as Cu	mg/lit	BDL	BDL	0.05
8.	Iron as Fe	mg/lit	BDL	BDL	0.3
9.	Manganese as Mn	mg/lit	BDL	BDL	0.1
10.	Chloride as Cl-	mg/lit	80	89	250
11.	Sulphate as SO ₄ ²⁻	mg/lit	37	41	200
12.	Nitrate as NO ₂	mg/lit	12	9	45
13.	Fluoride as F	mg/lit	0.43	0.37	1.5
14.	Phenolic compounds	mg/lit	BDL	BDL	0.001
15.	Mercury as Hg	mg/lit	BDL	BDL	0.001
16.	Cadmium as Cd	mg/lit	BDL	BDL	0.01
17.	Selenium as Se	mg/lit	BDL	BDL	0.01
18.	Arsenic as As	mg/lit	BDL	BDL	0.01
19.	Cyanide as CN	mg/lit	BDL	BDL	0.05
20.	Lead as Pb	mg/lit	BDL	BDL	0.05
21.	Zinc as Zn	mg/lit	BDL	BDL	5
22.	Chromium as Cr ⁺⁶	mg/lit	BDL	BDL	0.05
23.	Residual chlorine	mg/lit	BDL	BDL	0.2 min (when chlorinated)
24.	Total dissolved solid	mg/lit	429	527	500
25.	Alkalinity as CaCO ₃	mg/lit	208	225	200
26.	Aluminium as Al	mg/lit	BDL	BDL	0.03
27.	Boron as B	mg/lit	BDL	BDL	1.0
28.	Mineral oil	mg/lit	BDL	BDL	0.01
29.	Total coliform per 100 ml	MPN/100 mL	Absent	Absent	Absent
29.	Taste	-	Agreeable	Agreeable	Agreeable
30.	Odour	-	Unobjectionable	Unobjectionable	Unobjectionable

BDL (Below Detectable Limit): Cu-0.01, Mn-0.1, Phenolic compound-0.01, Cadmium-0.005, Cyanide-0.001, Res. Chlorine-0.1, Boron-0.005, Nitrate-2.5, Al-0.01, Mercury-0.001, Selenium-0.01, Arsenic-0.005, Lead-0.01, Zinc-0.01, Chromium-0.01, Iron-0.01, Mineral oil-0.2.


 Authorized Signatory
 Rekha Der


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Greenleaf Envirotech Pvt. Ltd., Nr. Rangoli Flats, Radhanpur Road, Mehsana – 384002. Gujarat, India.

Tel : +91-9725519974, E-mail: info@glepl.com, Web: www.glepl.com

Branch Office: 304. Kankavati Complex. Singanpor-Cauzway Road. Katargam. Surat– 395004.