

GUJARAT STATE ELECTRICITY CORPORATION LIMITED**Ukai Thermal Power Station**

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CIN: U40100GJ1993SGC019988

REF NO: CCUT/SEO/EEEC/R-005/ 1709

DATE: - 9 MAY 2018

By RPAD

To,

The Addl.Principal Chief Conservator of Forests (c),
 Ministry of Environment & Forests,
 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 Environment clearance issued for UTPS Unit no:
 06 & half-yearly analysis report of UTPS (Unit no.3 to 6).

Ref.: 1. Environmental clearance issued by MOEF vide letter no.J-13011/38/2008-IA.II (T),
 dtd.13/06/2008.

Dear Sir,

In context to above subject, enclosed herewith half yearly compliance report of Environment clearance issued by MOEF for Unit no. 06 of UTPS along with statistics of data regarding Effluent quality, Stack emission and Ambient air quality for the period from Oct -2017 to March-2018 in Annexure – I to IV & recurring expenditure as Annexure A.

It is requested you to provide us the certified compliance report.

Thanking you,

For and on behalf of GSECL

[Signature]
 I/c. CHIEF ENGINEER (GEN)
 GSECL: TPS: UKAI

Encl: 1. Annexure-I to IV
 2. Annexure-A

Copy f. w. cs. To:

1. The Member secretary,
 Gujarat Pollution Control Board
 Paryavaran Bhavan, Sector-10A,
 Gandhinagar-382010

Copy to: (By mail)

1. C.E. (Gen.), GSECL, HO, Vadodara.

UNIT # 6, GSECL, UKAI, TPS
Ministry of Environment & Forests, New Delhi
Environmental Clearance Terms & Conditions- Compliance

Sr. No	Terms & Conditions	Compliance
I)	No additional land shall be acquired for any activity / facility of this expansion project.	No additional land is acquired for any activity / facility of this expansion project.
II)	Sulphur and ash contents in the coal to be used in the project shall not exceed 0.60% and 30.2% respectively.	As per coal received from domestic collieries / suppliers.
III)	A stack of 275 m height shall be provided with continuous online monitoring equipments for SO _x , NO _x and particulate. Exit velocity of flue gases shall not be less than 20 m/sec.	A stack of 275 mt height is provided with real time online monitoring equipments for SO ₂ , NO _x and particulate. Exit velocity of flue gas is above 20 m/sec.
IV)	High efficiency Electrostatic Precipitator (ESP) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm ³ .	High collection efficiency Electrostatic Precipitator is provided for unit #6 with Collection efficiency of 99.897%.
V)	Low NO _x burners shall be provided.	Over Fire Air system (OFA) and lower Over Fire Air system is provided for reduction of NO _x emission.
VI)	Space provision shall be kept for retrofitting of FGD, if required at a later date.	Space provision is kept for retrofitting of FGD. Tender for awarding EPC for FGD is floated & technical bid opening is scheduled on 08.05.2018.
VII)	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.	<ul style="list-style-type: none"> • Pre tipping overhead sprinklers are provided in WT-1, 2 & 3 and on various conveyor belts. Fire hydrants and sprinklers are provided at various locations of CHP-I, CHP-II and CHP-III stack yard to avoid generation of coal dust or other dust. • Permanent closed shed/roofing is provided at primary & secondary crusher house. • Water Sprinklers & Spray nozzles are provided at Coal handling area. • Measures taken for control the air pollution while loading/Unloading coal by installing spray nozzle, fire monitor and sprinkler at coal handling plant. • Dust suppression is successfully commissioned & extraction system is under commissioning stage.

VIII)	Fly ash shall be collected in dry form and storage facility (silos) shall be provided. 100% fly ash utilization shall be ensured from day one of the commissioning of the expansion plant. The bottom ash shall be disposed off in the ash pond in the conventional slurry mode.	Two nos. of Fly ash silos having 1000 MT capacity each are provided for dry fly ash collection. 100% fly ash utilization is ensured from day one of the commissioning of the expansion plant. For bottom ash one no. of bottom ash silo having 500 MT capacity provided for bottom ash collection & High Concentration Slurry Discharge system (HCSDS) is also provided.
IX)	No ash pond shall be created for this expansion project. Existing ash ponds shall be used for disposal of bottom ash.	Existing ash ponds are used for disposal of bottom ash.
X)	Closed cycle cooling system with cooling towers shall be provided. COC of at least 5 shall be adopted and the effluents shall be treated as per the prescribed norms.	Closed cycle cooling system with cooling towers is provided. COC of at least 5 to 5.5 is being adhered and the effluent plant is provided to treat effluent as per the prescribed norms.
XI)	The treated effluents conforming to the prescribed standards shall be re-circulated and reused within the plant. There shall be no discharge outside the plant boundary except during monsoon for storm water. Arrangements shall be made that effluents and storm water do not get mixed.	Effluent Treatment plant is provided with API oil separator, TPI oil separator, Flash mixer, Flocculator, Lamella clarifier & Central Monitoring basin. Treated effluents conforming to the prescribed standards is reused coal plant area and ash handling plant.
XII)	A sewage treatment plant shall be provided and the treated sewage shall be used for raising greenbelt / plantation.	Domestic effluent is disposed off through septic tank.
XIII)	Rain water harvesting should be adopted. Central Groundwater Authority / Board shall be consulted for finalization of appropriate rain water harvesting technology within a period three months from the date of clearance and details shall be furnished.	Total 05-No. of Rainwater harvesting structures is developed. Out of 5 no - 2.0 (Two) nos. of rainwater harvesting structure are in colony and 3 (Three) Nos. are in Plant area.
XIV)	Adequate safety measures shall be provided in the plant area to check / minimize spontaneous fires in coal yard, especially during summer season. Details of these measures along with location plant layout shall be submitted to the Ministry as well as to the Regional Office of the Ministry at Bhopal.	As per the standard operating practice adequate fire fighting system has been provided.

XV)	Existing storage facilities for liquid fuel such as HFO and LDO shall be used. No additional facilities for liquid fuel shall be created. Existing Disaster Management Plan should be so modified to take care of the risk management of this expansion unit also. Mock drills shall be conducted regularly as planned.	Existing storage facilities for liquid fuel such as HFO and LDO is used. No additional facility for liquid fuel is created. Existing Disaster Management Plan is modified and the risk management of this expansion unit is updated. A mock drill is conducted regularly as standard operating practice.
XVI)	Regular monitoring of ground water in and around the ash pond area shall be carried out, records maintained and periodic reports shall be furnished to the Regional Office of this Ministry.	At present ash pond effluent analysis is carried out in every month by GPCB approved schedule-2 Environmental Auditors and monitoring of ground water around the ash pond area is carried out by GPCB approved schedule-1 Environmental Auditors. Records are maintained and submitted to GPCB. (Annexure II & IV)
XVII)	The existing green belt shall be expanded with additional land to take care of the expansion project. The expanded greenbelt shall be developed around the plant periphery preferably with local species. The total area under greenbelt (existing and expansion) shall cover about 1/3 of the project area.	Development of green belt of around the plant is in progress. The existing total green belt area is approximately 3668 Sq. Mt. (1131 No. of trees).
XVIII)	First aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	Complied
XIX)	Leq of Noise levels emanating from turbines shall be limited to 75 dBA. 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 steam & gas turbines, 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 area.	Regular monitoring of noise level is carried out in the High noise area and records are maintained. If at any stage these levels are found to exceed the prescribed limits, necessary control measures are being taken immediately. Personal protective equipment like earplugs/ earmuff is provided. Workers engaged in noisy areas such as turbine area, air compressors etc. are periodically examined by our Medical officer & maintain audiometric record.

XX)	Regular monitoring of ground level concentration of SO ₂ , NO _x SPM and RSPM 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.	At present regular monitoring of ground level concentration of SO _x , NO _x PM ₁₀ and PM _{2.5} is carried out in the impact zone and rerecords are maintained. (Annexure I) If at any stage these levels are found to exceed the prescribed limits, necessary control measures are being taken immediately. Periodic reports are regularly submitted to the Regional Office of this Ministry.
XXI)	The project proponent shall advertise in at least two local newspapers widely 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 clearances 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 was published in local news paper named Gujarat Samachar and Divya Bhaskar on dated 23/12/2008 informing that the project has been accorded environmental clearance and copies of clearances 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 .
Xxii)	A separate environment management cell with qualified staff shall be set up for implementation of the stipulated environmental safeguards.	UTPS has constituted separate Environment Cell under the control of Superintendent Engineer - Operation having one Executive Engineer (EEEC), one Executive Engineer (Civil), One Chief chemist and Two Environment engineers for better functioning & implementation of work relating to maintenance of healthy environment.
xxiii)	Half yearly report on the status of implementation of the stipulated conditions and environmental safeguards shall be submitted to this Ministry / Regional Office / CPCB / SPCB.	Complied, last half yearly report submitted on dtd. 17.02.2018 vide CCUT/SEO/EEEC / R-005/679,dated 17-02-2018.
xxiv)	Regional Office of the Ministry of Environment & Forests located at Bhopal will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring.	Complied

XXV)	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 funds earmarked for the Environmental protection measures are never diverted for any other purpose. Expenditure for the year 2017-18 is attached as <u>Annexure-A</u>
XXVI)	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.	Important dates for start of land development work and commissioning of plant is as per below: <ol style="list-style-type: none"> 1. Date of issue consent to establish from GPCB: 19/07/2008. 2. Date of commencement of land development work: 17-11-2008. 3. Consent to operate under water and Air Act from GPCB: 03-01-2014. 4. Commissioning of plant: 08-06-2013
XXVII)	Full cooperation shall be extended to the Scientists / Officers from the Ministry / Regional Office of the Ministry at Bhopal / The CPCB / the SPCB who would be monitoring the compliance of environmental status.	Noted and full cooperation shall be extended during the inspection.

ANNEXURE - I**AVERAGE AMBIENT AIR QUALITY AND COMPARISON WITH THE STANDARDS****DURING OCT 2017 TO MARCH 2018****(Ambient monitoring was carried out by M/s. Sidhee Green Excellence Pvt. Ltd. Ankleshwar)**

Location	Parameters	Units	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Avg.	Standards (Specified Norms)
Cooling Water Pump House	PM ₁₀	microgram / m ³	75	61	65	69	72	74	69.33	100
	P.M _{2.5}	microgram / m ³	26	31	25	26	28	24	26.67	60
	Oxides of Sulphur	microgram / m ³	21	29	18	20	23	21	22.00	80
	Oxides of Nitrogen	microgram / m ³	23	19	23	24	20	23	22.00	80
Near LDO Pump House	PM ₁₀	microgram / m ³	70	74	71	75	76	77	73.83	100
	P.M _{2.5}	microgram / m ³	24	42	34	29	24	25	29.67	60
	Oxides of Sulphur	microgram / m ³	19	35	22	26	26	20	24.67	80
	Oxides of Nitrogen	microgram / m ³	21	24	26	25	23	25	24.00	80
Near Engg Hostel	PM ₁₀	microgram / m ³	67	57	58	59	56	59	59.33	100
	P.M _{2.5}	microgram / m ³	22	20	15	18	22	20	19.50	60
	Oxides of Sulphur	microgram / m ³	17	18	16	16	19	18	17.33	80
	Oxides of Nitrogen	microgram / m ³	20	15	17	19	21	19	18.50	80
AT store	PM ₁₀	microgram / m ³	72	79	68	66	75	72	72.00	100
	P.M _{2.5}	microgram / m ³	27	47	22	20	21	20	26.17	60
	Oxides of Sulphur	microgram / m ³	23	38	21	23	21	22	24.67	80
	Oxides of Nitrogen	microgram / m ³	24	21	17	20	22	20	20.67	80

ANNEXURE - II

AVERAGE EFFLUENT QUALITY AND COMPARISON WITH THE STANDARDS

DURING OCT 2017 TO MARCH 2018

(Effluent monitoring was carried out by M/s. Sidhee Green Excellence Pvt. Ltd. Ankleshwar)

Sr	Stream Identity	Parameters	Units	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Avg.	Standards (Specified Norms)	
1	Boiler blow down unit # 3 to 5	Suspended Solids	mg/l	14	25	16	69	54	60	39.7	100	
		Oil & Grease	mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	10
		Total Copper (as Cu)	mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1
		Total Iron (as Fe)	mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1
2	Condenser cooling (for unit#3 to 5)	Temp	mg/l	27	25	24	25	26	27	25.7	Not more than 5 °C Higher than intake water	
		pH	mg/l	8.3	7.98	8.45	8.48	8.28	8.06	8.3	6.5-8.5	
		Free available Chlorine	mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.5
3	Ash dyke outlet	pH	---	8.35	8.28	8.36	8.56	8.19	8.32	8.3	6.5-8.5	
		Oil & Grease	mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	10
		Suspended Solids	mg/l	81	70	68	82	76	80	76.2	100	
4	Boiler blow down unit # 6	Suspended Solids	mg/l	20	18	12	15	10	FSD	15.0	100	
		Oil & Grease	mg/l	BDL	BDL	BDL	BDL	BDL		BDL	10	
		Total Copper (as Cu)	mg/l	BDL	BDL	BDL	BDL	BDL		BDL	1	
		Total Iron (as Fe)	mg/l	BDL	BDL	BDL	BDL	BDL		BDL	1	
5	ETP #6 outlet	pH	--	7.4	7.25	Sample not taken due to under maintenance work of ETP	7.86	7.92		7.60	6.5-8.5	
		Suspended Solids	mg/l	58	40		55	30	45.75	100		
		Oil & Grease	mg/l	BDL	BDL		BDL	BDL	BDL	10		
		Total Copper (as Cu)	mg/l	BDL	BDL		BDL	BDL	BDL	1		
		Total Iron (as Fe)	mg/l	BDL	BDL		BDL	BDL	BDL	1		

ANNEXURE - III										
AVERAGE STACK EMISSION QUALITY AND COMPARISON WITH THE STANDARDS										
DURING OCT 2017 TO MARCH 2018										
(Stack monitoring was carried out by M/s. Sidhee Green Excellence Pvt. Ltd. Ankleshwar)										
Unit no.	Parameters	Units	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Avg.	Standards (Specified Norms)
Unit 3	Particulate matter	mg/Nm3	116	114	105	98	92	118	107	100
	Sulphur dioxide	mg/Nm3	968	1000	1191	1227	1241	1293	1153	600
	Nitrogen Oxides	mg/Nm3	318	344	312	348	369	506	366	600
Unit 4	Particulate matter	mg/Nm3	105	103	116	102	109	107	107	100
	Sulphur dioxide	mg/Nm3	1010	1078	1259	1230	1454	1110	1190	600
	Nitrogen Oxides	mg/Nm3	401	371	384	367	487	510	420	600
Unit 5	Particulate matter	mg/Nm3	102	89	78	84	89	96	90	100
	Sulphur dioxide	mg/Nm3	1013	1204	1097	1102	1513	1309	1206	600
	Nitrogen Oxides	mg/Nm3	212	309	271	348	259	364	294	600
Unit 6	Particulate matter	mg/Nm3	40	42	39	42	32	FSD	39	50
	Sulphur dioxide	mg/Nm3	922	2201	827	1005	1123	FSD	1216	200
	Nitrogen Oxides	mg/Nm3	384	467	317	291	384	FSD	369	300

ANNEXURE - IV**Ground water analysis near Ash dyke****Analysis was carried out by GPCB Schedule - I Environmental Auditor- N. G. Patel Polytechnic**

Sr. No.	Parameters	Units	Results		
		Date	11-07-2017	08-11-2017	14-02-2018
1	Temperature	° C	25.5	26.2	27.5
2	pH value	--	8.2	8.41	8.43
3	Colour	Pt – Co Scale	ND	ND	ND
4	Total Suspended Solids	mg/L	12	11	10
5	Total Dissolved Solids	mg/L	181	197	184
6	BOD (5 Days @ 20 °C)	mg/L	ND	ND	ND
7	COD	mg/L	ND	ND	ND
8	Oil & Grease	mg/L	BDL	BDL	BDL
9	Chlorides	mg/L	132	142	156
10	Sulphates	mg/L	14	17	18
11	Ammonical Nitrogen	mg/L	ND	ND	ND
12	Sulphides	mg/L	ND	ND	ND
13	Phosphate	mg/L	ND	ND	ND
14	Fluorides	mg/L	ND	ND	ND
15	Phenolic Compound	mg/L	ND	ND	ND
16	Free Chlorine	mg/L	ND	ND	ND
17	Total Chromium	mg/L	ND	ND	ND
18	Cynaide	mg/L	ND	ND	ND
19	Copper	mg/L	ND	ND	ND
20	Iron	mg/L	ND	ND	ND
21	Nickel	mg/L	ND	ND	ND
22	Zinc	mg/L	ND	ND	ND

ANNEXURE: A**Gujarat State Electricity Corporation Ltd.****UKAI Thermal Power Station****Details of Recurring Expenditure on Environmental Management (In Rupees) For the year 2017-18**

Sr.No	Expenses on	Total Amount Rs.	Remarks, if any
1	Salaries & Wages of staff of Env cell	1393538	Salaries
2	Payment to Contractors for monthly monitoring	302867	Payment to contractors
3	Fees to Environment Auditors.	380919	Payment to Environment Auditor
4	Consent / Audit / Other Fees to GPCB	120000	Consent fee and Environmental audit Fees to GPCB
5	Payment to GPCB for sampling and analysis	44910	For sampling by GPCB
6	In-house sampling and analysis	40608	cost of thimble
7	Payment of Water Cess to GPCB	2238337	Water cess for the year 2016-2017.
8	Maintenance costs for Ash Handling	30852805	Maintenance costs for Ash Handling
9	Purchase / Maintenance of Equipments for Environment laboratory	18500	Calibration of stack monitoring Kit
10	Gardening and Plantation	726928	Development and maintenance of Garden in urja nagar colony
11	Ash dyke construction, area grading, maintenance of bunds	1990000	Ash dyke maintenance
12	Maintenance & retrofitting of of ESPs and spares apart from electric power consumption	9516213	Replacement of hopper heater element, haft insulators, x'mer oil, rewinding of collecting/emitting motors etc.
13	Misc. Civil Works for Environment	624391	Gardening and plantation
14	Maintenance of On-line Monitors	1844000	Maintenance of Unit 3 to 6 online monitors & gas analyzer.
15	Attending of Coal Mill /Pipe leakages and Duct leakages	1031120	Attending of leakage
16	Maintenance of Neutralizing Pits / Cost of chemicals used	248098	Cost of chemical
17	Maintenance cost of water spraying.	-	Cost of water spraying
18	Maintenance of SILOs(UNIT 3 TO 6)	4262205	Maintenance of silo
19	Maintenance of ETP	1539720	Maintenance of ETP
	Maintenance of ZLD Sumps / pumps	308166	ZLD sump Pump maintenance
20	Maintenance of STP	63000	Pump maintenance
21	Participation in Environment related Seminars / Conferences / Training programmes/ World Environment Day	19388	Training fee
22	Waste Oil, Resin and Battery management	-	Disposal charges
23	Bio-medical wastes management	73370	For Hospital waste
	GRAND TOTAL (Recurring) Rs.	57639083	
	Note : The costs of power consumption in the ESPs and the salaries and wages of Civil Ash dyke and Ash plant sections and departmentally used manpower and operation costs are not included		