

भारत सरकार GOVERNMENT OF INDIA पर्यावरण एवं वन मंत्रालय MINISTRY OF ENVIRONMENT & FORESTS

SPEED POST क्षेत्रीय कार्यालय, पश्चिम क्षेत्र, Regional Office, Western Region. "केन्द्रीय पर्यावरण भवन" "Kendriya Paryavaran Bhavan" लिन्क रोड नं0-3/Link Road No. 3 E-5,रविशंकर नगर/Ravi Shankar Nagar. भोपाल (म०प्र0)/Bhopal-462016 (M.P.) फोन: 0755- 2465054, फैक्स: 0755& 2463102 अणुडाक /E-mail: reefbhopal@gmail.com

दिनांक : 26.10.2016

कमांक: 5-48/ENV/92 / 380

प्रति,

डॉ0 ललित बोकोलिया, वैज्ञानिक 'एफ', पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, इंदिरा पर्यावरण भवन, जोर बाग रोड, अलीगंज, नई दिल्ली - 110003

Debottelnecking of Petrochemical Plant of Dahej Expansion Se Manufacturing Division (DMD) at Tehsil Vagra District Bahuruch Gujarat विषय: By M/s Reliance Industries Limited.

संदर्भ: 1. No. J-11011/27/90-IA-II dated 14th March 1991 2. No. J-11011/482/2006- IA II (I) dated 11th June 2007 3. No. J-11011/402/2007- IA II (I) dated 20th March 2008

महोदया,

मंत्रालय के उपरोक्त संदर्भित पत्रांकों के संदर्भ में उक्त परियोजनाओं को पर्यावरणीय दृष्टिकोण से अनुमति देते समय अनुबद्ध शर्तों के अनुपालन एंव certification of compliance के निर्देशाअनुसार, अनुवीक्षण प्रतिवेदन (मॉनिटरिंग रिपोर्ट) एतद् द्वारा संलग्न कर प्रेषित है ।

वैज्ञानिक 'एफ

संलग्नः उपरोक्तानुसार

- तिलिपि: 1. श्रीमति रीता खन्ना, निदेशक, (अनुवीक्षण सैल), पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय,इंदिरा पर्यावरण भवन, जोर बाग रोड, अलीगंज,नई दिल्ली – 110003 की ओर सूचनार्थ एंव आवश्यक कार्यवाही हेतु।
 - Shri Pavan K. Jain Site President, Reliance Industries Limited, Dahej Manufacturing Division, Dahej, P.O. Bharuch, District: Bharuch – 392130 Gujarat - 392130

वैज्ञानिक 'एफ'

Monitoring the Implementation of Environmental Safe Guards Ministry of Environment & Forest Western Region, Regional Office, Bhopal MONITORING REPORT PART-I

DATA SHEET

1	Project type: River Valley/Mining/Industry / Industry, Thermal/Nuclear/Other (Specify)	Industry (Petrochemical)
2	Name of the Project	Gandhar Petrochemical Complex
3	Clearance letter (s) OM No. & date	No. J-11011/27/90-IA-II dated 14th March 1991
4	Location Districts State Location- Latitude/Longitude	Dahej Bharuch Gujarat Latitude : $21^{0}40'35"N \& 21^{0}41'27"N$ Longitude : $72^{0}33'32"E \& 72^{0}35'04"N$
5	Address for Correspondence	
(a)	Address of the concerned Project Chief Engineer (with Pin Code & telephone / telex / fax numbers	Shri Pavan K. Jain Site President, Reliance Industries Limited, Dahej Manufacturing Division, Dahej, P.O. Bharuch, District: Bharuch - 392130 Gujarat - 392130 Ph : 02641- 615001 E-mail : pavan.jain@ril.com
(b)	Address of Executive Project Engineer / Manager (with Pin code /fax numbers)	Shri Pavan K. Jain Site President, Reliance Industries Limited, Dahej Manufacturing Division, Dahej, P.O. Bharuch, District: Bharuch - 392130 Gujarat - 392130 Ph : 02641- 615001 E-mail : pavan.jain@ril.com
6	Salient features	
(a)	Of the Project	Already submitted to the Ministry of Environment & Forest, New Delhi based on which the aforesaid EC has been obtained. India's only Integrated Petrochemical Complex having a capability to produce PVC from a salt. This complex comprises CA, VCM, PVC plants along with other infrastructure facilities like CPP – 65 MW,Captive Jetty. Best Available Technology in the world were selected for these plants.
(b)	Of the Environment Management Plan	EMP was prepared based on the baseline data collected by NEERI and impact prediction were done using mathematical models and superimposition of those impacts on the baseline. EMP includes provision of state of the art Effluent Treatment Plant and Air Pollution control equipment, solid waste management and Green Belt development. Regular environment monitoring is also a part of EMP. Major

/		 pointsimplemented as per EMPe.g. selected the state of art clean membrane cell technology for CA plant Segregated waste water stream and provided ETP for treatment Provided incinerator with scrubber. Developed Landfill site with liner and leachate collection system.
7	Breakup of the project area	
(a)	Submergence Area : Forest & Non Forest	No forest land is involved in this project. Prio to project implementation the land was devoid of any vegetation due to saline nature of soil.
(b)	Others	Total area of project 700 ha.
8	Breakup of the project affected population with enumeration of those losing houses / dwelling units only agricultural land only, both dwelling units and agricultural land and landless labourers / artisans : (a) SC, ST / Adivasi (b) Others (please indicate whether these figures are based on any scientific and systematic survey carried out or only provisional figures, if a survey is carried out give details & year of survey.	Not Applicable
9	Financial details	
(a)	Project cost as originally planned and subsequent revised estimates and the year of price reference	Cost of Project was Rs.900 crore as originally planned in 1994,
(b)	Allocation made for environmental management plan with item wise and year wise break up	Revised cost was 1000 Crore in 1995-96Non-recurring (i.e. CAPEX) Rs. 100 Crore(Estimated cost: ETP / Drainages : Rs. 30Crore,APCE : DM Water / Caustic Scrubber, VCMIncinerator, Low Nox Burnersetc: Rs. 60 Crore,Solid Waste Mgt: Rs. 6 CroreandGreen Belt Development - Rs.4 crore)Recurring (i.e. OPEX) / year (O&M of ETPGreen Belt, Waste disposal, Env monitoring) -Rs.50 lakhs
(c)	Benefit / cost ratio / Internal Rate of Return and the year of assessment	Benefit / cost ratio for all our project is more than 1. Project has achieved IRR of more than 12%
(d)	Whether (c) includes the cost of environment management as shown above	Yes .
(e)	Actual expenditure incurred on the project so far	Rs.1000 crore
(f)	Actual expenditure incurred on the environmental management plan so far	Non-recurring (i.e. CAPEX) Rs. 105 Crore

F	**	(ETP / Drainages : Rs. 30 Crore,
/		APCE : DM Water / Caustic Scrubber, VCM Incinerator, Low Nox Burners etc: 65 Crores, Solid Waste Mgt: 6 Crores and Green Belt Development - Rs 4 crore)
		Recurring (i.e. OPEX) / year (O&M of ETP, Green Belt, Waste disposal, Env monitoring etc) - Rs.8 crore for FY 15-16 and Rs. 5 crore for FY 14-15
10	Forest land requirement a) The status of approval for diversion of forest land for non-forestry use b) The status of clearing/felling obtained. c) The status of CA, if any d) Comments on the viability and	No requirement of Forest Land
	sustainability of CA programme in the light of actual field experience so far	
11	The status of clear felling in non-forest areas (such as submergence area of reservoir, approach road etc) if any with quantitative information required	Not Applicable
12	Status of construction (Actual &/or planned) a) Date of commencement b) Date of completion	VCM, PVC, CA&CPP – 60 MW completed and commissioned during 1996-97
13	Reason for delay (if project is yet to start)	Not Applicable
14	 Dates of site visit a) Date on which the project was monitored by the RO on previous occasion (if any) b) Date of the site visit for the monitoring report 	30.09.2016
15	Details of correspondence with project authorities for obtaining act onplans/ information on status of compliance to safeguards other than the routine letters for logistic support for site visits. (The first monitoring report may contain the details of all the letters issued so far, but the later reports may cover only the letter issued subsequently)	As below
Date	Letter from RO	Date Reply from PA
		13/09/2016 Mail Received from PA
	*	20/10/2016 Letter no. GPC/HSE/E/476/2010/1

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PART – II & III

DESCRIPTIVE REPORT ON STATUS OF COMPLIANCE FOR THE PERIOD OF APRIL 2016 - SEPTEMBER, 2016 TO CONDITIONS OF ENVIRONMENTAL CLEARANCE AND ENVIRONMENTAL MANAGEMENT

O.M. No.: . J-11011/27/90 -IA-II dated 14th March 1991

SR. No.	Conditions of the Environment Clearance		Compliance Status of the	Conditions of EC		
1	The project authority must strictly adhere to the stipulations made by the State Pollution Control Board and the State Govt.	Control	been stated that Stipulations r I Board are strictly adhered to CB, vide CCA order no W-760	and major stipulations made		
		The status of compliance of major stipulations given by GPCB vide CCA as provided by PP is given as below :				
		Cond. No.	CCA Conditions	Compliance Status of CCA Conditions		
		3.1	The quantity of total fresh water consumption shall not exceed 1,27,382 KL/day	Average fresh water requirement for the period Apr-Sep'16 was 76,791 KLD which is not exceeding the permissible limit of 1,27,382 KLD		
		3.4.1	The quality of treated effluent shall conform to the following standards prior to disposal into deep sea (Gulf of Khambhat) through the existing effluent disposal pipeline equipped with multiport diffuser. Note: Standards are prescribed in CCA	Treated effluent is being monitored on monthly basis through MoEF approved agency and the quality of effluent maintained well within the norms prescribed by GPCB and then it is discharged through existing effluent disposal pipeline equipped with multiport diffuser.		
				Results of treated effluent quality monitoring given in Condition Nc. 8 indicates the conformance to the GPCB prescribed standards vide this CCA.		
		4.4	The process emissions through various stacks /vents of reactors , process, vessel shall conform to the following standards Note : Standards are prescribed in CCA.	The gaseous emissions from various process units are monitored on monthly basis through MoEF approved laboratory and its results given in the Condition no 4 indicates the conformance to the GPCB prescribed standards vide this CCA.		
		5.1 Sr. No. 5	Spent Catalyst (Sr.No. 1) Spent Oil /Used Oil (Sr.No.5) Discarded containers (Sr.No.8) Facility prescribed for Above listed wastes: Collection.	Spent catalyst generated from the plants is collected, stored properly and sold to authorized reprocessors for recovery of metal		
			Storage, Treatment and Disposal at approved site/ sell to authorize vendor for recycle or by selling to registered refiners.	Spent oil/ used oil generated from the facility is collected in the drums and sold to registered oil recyclers.		
				Discarded containers generated from the plants are collected, decontaminated, stored properly and then sold to authorized vendor.		
		The deta Authoriz separate Complie		of Consolidated Consents & CB has also been provided		

Any expansion of the plant, either with the existing product mix or new product can be taken up only with the prior approval of this Ministry.	new product been carr	at RIL Dahej N	either with the Aanufacturing E prior environ below:	ivision is s	stated to have		
	Sr. EC			Accorde By	d Date of		
	1. EC vi (i)	de letter No. J-1 for CAPEX arPetrochemicals	1011/482/2006-IA project a Complex	1 MoEF	A 11.06.07		
	11 (1) 1	or expansion proje ries Limited, Da	1011/402/2007- 1/ ect of M/s Relianc hej Manufacturin	e (IA	20.03.08		
	3. EC vi 1(d) / Acrylic Plants petroc Divisio	de letter No. SEI 124/2011 for sett Acid and Esters, and 200 MW CO hemical unit at D n, P.O Dahej,	AA /GUJ/EC/5(e)(ing up of EODs Phenol, PTA, PE CPP in the existin ahej Manufacturin Tal Vagra, Dis Industries Limited	, Gujarat F a	23.06.11		
	3a. Ameno letter	iment to EC grante	ed on 23.06.11 vid 3UJ/EC/5(e)& 1(d	SEIAA,	09.08.11		
	letter		ed on 23.06.11 vid UJ/EC/5(e)& 1(d		12.09.12		
	Complied.						
The project authority must submit comprehensive EIA report for the							
comprehensive EIA report for the proposed activity along with the future activity proposed/approved by this Ministry, before July 1991.	activity along have been o	g with the future	e activity propo completed in S	sed/approv	ed by MoE		
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	Chlor Alkali Plant - Stacks	Cl ₂ (mg/Nm ³)	9	ŇD	ND	ND
	Attached to Hypo and HCI synthesis Unit	HCI (mg/Nm ³)	20	14.18	7.29	18.23
	Synthesis onit	PM (mg/Nm ³)	150	12.50	10:00	14.00
		SO ₂ (ppm)	100	5.11	4.57	6.12
	PVC Plant- Stacks	NOx (ppm)	50	11.57	10.67	13.54
	attached to PVC Dryers	CO (mg/Nm ³)	150	0.67	0.60	0.74
		VCM (mg/Nm ³)	6.6	ND	ND	ND
	PTA Plant -	PM (mg/Nm ³)	150	ND	ND	ND
	Stacks attached to Off gas	SO ₂ (mg/Nm ³)	40	ND	ND	ND
	scrubber, atmospheric scrubber and vent scrubber	NOx (mg/Nm ³)	25	ND	ND	ND
At no time the emission level should go beyond the stipulated standards.	exceeded the	that during Ap standards pr	escribed by G	SPCB.	This is	reflected
In the event of failure of any pollution	report has be Complied. Pollution con	en submitted k trol systems in	n the plant ar	Stack e ely. re conr	mission	through
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-	of the plant.				edly also prov educing NOx g			
		Complied.						
	The incinerator should have a stand- by system for unforeseen circumstances.							
	The project authorities should recycle the waste to the maximum extent and liquid effluent coming out of the plants should meet the stipulated standards.	and by selling	to a	uthorize recyc	maximum extension clers as per C anted by GPCE	CA orde		
	*	The treated effluent is being monitored every month throu approved agency and the same is reported to be conform GPCB standards for the period Apr'16-Sep'16.						
		Sept' 16 as pr	ortrea	is presented	uality monitorin below:	g report	s for Ap	
		Parameter	Unit	MoEF Limit	Average	Min	Max	
		pH Total	-	6.5-8.5	7.40	6.82	7.62	
		Suspended Solids	mg/l	100	15.33	10.00	20.00	
		Oil & grease *	mg/l	* 20	ND	ND	ND	
		Phenolic compounds (as C6H5OH)	mg/l	5	ND .	ND	ND	
		Cyanide (as CN)	mg/l	0.2	ND	ND-	ND	
		Fluorides (as F)	mg/l	15	0.46	0.36	0.55	
		Sutphides*	mg/l	5	2.29	2.00	2.66	
		BOD (3 days at 27°C)	mg/l	50	18.83	14.00	28.00	
		COD	mg/l	250	119.50	92.00	165.0 0	
		Total Chromium (as Cr) *	mg/l	2	ND	ND	ND	
		Hexavalent Chromium (as Cr+6) *	mg/l	1	ND	ND	ND	
		Bioassay Test *	P	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	*	-	
		GPCB standar	d is co	nsidered)	the norm for thi			
		It can be see conforming to t The detailed to	he sta	ndard stipulate	ed by GPCB.			
		submitted sepa			moring report	nas di	o bee	
	There should be only minimum discharge.	Complied Treated effluer tower make up The average quantities duri below as again	DM w of ef ng rep st the	ater production fluent generation porting period	on, green belt d ation, recycle l of Apr-Sep'1 mits prescribed	evelopm and di l6 is pr under th	ent. scharge esente ne lates	

1		dated 23 rd June 2011.	Permissible Limit	Average		
1		Description	(KLD)	(KLD)		
0		Quantity of Effluent	44,600	36,497		
		Generation Quantity of Effluent Recycle	14,080	13,879		
		Quantity of Effluent Discharge	30,520	22,618		
		Percentage of Recycle	32%	38%		
		It can be seen from the above is done to maximum extent complex. Complied.	for minimizing dis	charge from the		
9	The liquid effluent to be discharged into the sea should maintain a temperature difference of not more than 5°C as compared to sea water temperature.	The liquid effluent discharged difference of less than 5°C of PP informed that Guard po effluent to attain atmospheric the sea.	compared to sea wa	store the treated		
		Complied.	1.1.11	and and		
10	Only sea water should be used for cooling purposes.	PP submitted that Ministry allowed use fresh water for c	ooling purposes, wh	ich is complied.		
	The project authorities should not draw more than 22 MGD through the jack-up-well in Narmada.	which is not exceeding the permissible limit for water drawl of 22 MGD.				
	In case the flow in Narmada falls below the 2000 cusecs at any point of time alternate arrangements will be made by RIL for obtaining the required quantity of water which may include sea water for cooling purposes and for which plans will be submitted along with comprehensive EIA.	In case of water shortage i that RIL-DMD complex has requirements e.g. 1. If required, shutting which consumes mo 2. Maximize the rec sewage. 3. Water requirement minimize by consid water shortage perior	down the some of ore water. ycling of treated for the plants/ gre dering seasonal red	the process units effluent including een cover will be		
		Complied. Effluent quality monitoring s	tation provided at the	inlet and outlet o		
11	Adequate number of effluent quality monitoring stations must be set up in consultation with the State Pollution Control Board and the effluents monitored should be statistically analysed and the report sent to the Ministry every six month.	ETP in consultation with the effluent monitoring reports basis and to ministry on six treated effluent is provided a Complied.	e Gujarat Pollution C are submitted to Gl monthly basis. The c and reflected at conc	PCB on a monthly details of quality o lition no 8 above.		
12	A study should be conducted with the help of National Institute of Oceanography with regard to breeding and spawning habits of fishes and accordingly the marine	considering the above infor	outfall has been des	signed by NIO afte		

/	Produce toxicity bioassay based on the effluent with sea-fish and fish- food organism must be carried out at least once in a year.	PP explained that Bioass conducted in the laboratory of effluent. The local fishes are experiment and the test is co IS 6582. Result of 90% sur- effluent is achieved for the r analysis results of Bioassay	with the te e taken as arried out rvival of fi review per	st containe the Testin in the labo sh after 96 jod of Apr'	ig anima ratory as 6 hours i 16 –Sep	for this per the n 100% '16, The
		Complied.	dan to Cl	CP stand	ard is uti	lized for
4	The treated effluent conforming to the prescribed standards should be utilised for green belt development to the maximum extent possible.	The treated effluent conform green belt development and DM water production.	d also for	cooling tow	er make	and
15	The green belt design should be finalised and got approved from this Ministry within a period of one year.	The green belt was designed per guidelines given by NEE Complied.	ed by NEE RI.	RI and it w	/as deve	loped as
16	The project authority should prepare a well-designed scheme for solid waste disposal generated during various processes operation or in treatment plant. The plan for disposal should be submitted to the	Hazardous and other solid managed in accordance with Rules, 2008. Authorisat collection/treatment/ storag available which is valid up to	th the Haz tion (W-7 te/ dispos to 03.11.20	ardous VVa 76082) fro al of haza 20.	aste (M, om GP ardous M	CB for astes is
	Ministry within two years.	M/s. National Productivity C by RIL for providing the de system and the solid wast Ministry.	esian of th	he solid wa	aste mar	agemen
		Hazardous and solid wastes reporting period Apr-Sep'16 Copy of Form - 4 submittee also been provided.	has been	provided.		
		also been blovided.				
17	Ground water near the solid waste disposal site as well as around the plant should be regularly monitored.	Complied. Ground water quality is b	und the pla water mor	itoring resu	ults for t	IS.
17	disposal site as well as around the	Complied. Ground water quality is b disposal site as well as arou The summary of Ground v Apr'16-Sep'16 as provided	und the pla water mor	itoring resu itoring resu ed as belov	bore wei ults for t v.	IS.
17	disposal site as well as around the	Complied. Ground water quality is b disposal site as well as arou The summary of Ground v Apr'16-Sep'16 as provided	und the pla water mor is present	itoring resu	ults for t	is. he perio
17	disposal site as well as around the	Complied. Ground water quality is b disposal site as well as arou The summary of Ground v Apr'16-Sep'16 as provided	und the pla water mor is present	ant using 8 itoring resu ed as belov Average	bore wei ults for t v. Min	he perio Max
17	disposal site as well as around the	Complied. Ground water quality is b disposal site as well as arou The summary of Ground v Apr'16-Sep'16 as provided Parameter pH Conductivity	und the pla water mor is presente UNIT	ant using 8 itoring rest ed as belov <u>Average</u> 8.62	bore wel ults for t v. <u>Min</u>	is. he perio <u>Max</u> 9.2
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17	disposal site as well as around the	Complied. Ground water quality is b disposal site as well as arou The summary of Ground v Apr'16-Sep'16 as provided Parameter pH Conductivity TDS Turbidity	und the pla water mor is presente UNIT µS/cm mg/l NTU	ant using 8 itoring resu ed as below <u>Average</u> 8.62 4700.00 3071.33 3.27	Min 8.1 3820 2483	IS. he perio <u>Max</u> 9.2 5600 3640
17	disposal site as well as around the	Complied. Ground water quality is b disposal site as well as arou The summary of Ground v Apr'16-Sep'16 as provided Parameter pH Conductivity TDS Turbidity P-alkalinity (as CaCO3)	und the pla water mor is presente UNIT µS/cm mg/l NTU mg/l	Ant using 8 itoring resulted as below Average 8.62 4700.00 3071.33 3.27 101.17	Min 8.1 3820 2483 0.8 0.8	Max 9.2 5600 3640 6.9
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1		The detailed monitoring results have been provided separately.
		Complied
18	A detailed risk analysis based on Maximum Credible Accident Analysis should be done once the process design and lay-out is frozen. Based on this a disaster management plan has to be prepared and after approval by the concerned nodal agency, should be submitted to this Ministry.	It has been explained by PP that Detailed Risk Analysis considering Maximum Risk scenario is carried out for the site based on which the Disaster Management Plan (i.e. On-site Emergency Plan and Off-site Emergency Plan) is prepared for the complex. The DMP is approved by the DISH. The DMP is reviewed periodically Complied.
19	The storage tanks and spheres must conform to the stipulations made by the Chief Inspector of Factories, Controller of Explosives etc. Wherever required, it should be supplemented by OISD codes.	Storage tanks and spheres stated to conform to the stipulations made by Legal authorities like the Chief Inspector of Factories Controller of Explosives and meet the requirements of OISD. Complied.
20	A separate environmental management cell with suitably qualified people to carry out various functions should be set up under the control of Senior executive who will report directly to the head of the organization.	The environmental management cell is established at the plant with qualified professionals. The Environment head of the plant reports to Head of HSEF department and who in turn reports to the Site President (i.e. Factory Manager) of the complex. The detailed organogram is presented as below :
21	The project authority must set up a laboratory facility for collection and analysis of samples under the supervision of competent technical personnel who will directly report to the Chief Executive.	RIL-DMD has a full-fledged Quality Assurance (Laboratory) dept., manned with qualified Lab-technicians under the supervision of competent & well-experienced managers who also carry out the Environmental sample analysis. The QA head directly reports to the Factory Manager of the complex. For the glimpse of Quality Assurance Department, PP has submitted a photograph separately.
22	The villagers who are likely to be	Complied.
~	displaced due to setting up of the project should be rehabilitated as per Govt. of India Guidelines, or State Govt. guidelines whichever is acceptable to local population. Rehabilitation Master Plan should be submitted and got approved within 6	Rehabilitation plan submitted and approved in the EIA of the plant. Complied.

	months of this approval.	
23	The funds earmarked for the environmental protection, measures should not be diverted for other purposes and year-wise expenditure should be reported to this Ministry.	Dedicated Environment management funds are allocated each year and it is not diverted for any other activities at the plant. The recurring environmental expenditure for the year 2015-16 was around Rs 8 Crores.
11.	The Ministry or any other competent authority may stipulate any further condition after reviewing the comprehensive impact assessment report or any other reports prepared by project authorities.	The Ministry or any other competent authority has not added any conditions to this EC. However the expansion of plants were carried out after obtaining Environmental Clearance from MoEF / SEIAA as detailed in condition no. 2 Complied.
111.	The Ministry may revoke clearance if implementation of the stipulated conditions is not satisfactory.	This condition is not applicable to PP.
IV	The above conditions will be enforced inter-alia under the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Pollution) Act 1981, and Environment (Protection) Act 1986, along with their amendments.	This condition is not applicable to PP taken cognizance

Summary and inference:

The compliance of EC conditions is good. Out of 26 conditions, 24 are found to have been complied, one condition is not applicable to the PP and one condition needs only taking note/ cognizance.

Court Cases and Show cause notices issued:

It has been reported that there is no court case on this project

Date	Details of Directions by CPCB/ Show Cause Notice (SCN) issued by GPCB, if any	Date	Reply from PA
Letter no. GPCB-HAZ- GEN- 503/316347 dated 04.06.2015	Show Cause Notice issued by GPCB regarding observation of no submission of monthly data of hazardous waste disposed / incinerated at our captive TSDF/Incinerator and foresaid details.	Letter No. RIL/HSE/E/47 4 dated 19.06.2015	Replied to notice with supporting evidences as we are regularly submitting the details as a part of GPCB Monthly Report in hard copy to GPCB Regional Office Bharuch and GPCB Gandhinagar and also are submitting the required details in GPCB XGN portal. Therefore it is resolved. The query was resolved and no further action has been initiated.

Details of Notices issued during last three years.

Letter no.: B-29016/ 04/06/PCI- 1/44989 dtd. 24.07.2015 received on 24.08.2015	Directions issued by CPCB under regarding installation of on-line effluent and emission monitoring systems	Letter No. RIL/HSE/E/47 4/2908/PC dated 29.08.2015	Replied to letter with following details 1. Documentary evidence regarding CAPEX raised for installation of online emission & effluent monitoring system. 2. Letter to CPCB through CPMA dtd. 24.06.2015 providing time schedule for completion of establishing online facilities and connecting to GPCB/CPCB server by December 2016.
	Λ		Continuous Emissions Monitoring System is installed and commissioned in all stacks and at ETP outlet.

Counter signed by: Addl PCCF (C)

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Scientist 'F'

Monitoring the Implementation of Environmental Safe Guards Ministry of Environment & Forest Western Region, Regional Office, Bhopal MONITORING REPORT

PART-I

DATA SHEET

1	Project type: River Valley/Mining/Industry / Industry, Thermal/Nuclear/Other (Specify)	Industry (Petrochemical)
2	Name of the Project	CAPEX Project at Gandhar Petrochemicals Complex
3	Clearance letter (s) OM No. & date	No. J-11011/482/2006- IA II (I) dated 11 th June 2007
4	Location Districts State Location-Latitude/Longitude	Dahej Bharuch Gujarat Latitude : $21^{0}40'35''N \& 21^{0}41'27''N$ Longitude : $72^{0}33'32''E \& 72^{0}35'04''N$
5	Address for Correspondence	
(a)	Address of the concerned Project Chief Engineer (with Pin Code & telephone / telex / fax numbers	Shri Pavan K. Jain Site President, Reliance Industries Limited, Dahej Manufacturing Division, Dahej, P.O. Bharuch, District: Bharuch - 392130 Gujarat - 392130 Ph : 02641- 615001 E-mail : pavan.jain@ril.com
(b)	Address of Executive Project Engineer / Manager (with Pin code /fax numbers)	Shri Pavan K. Jain Site President, Reliance Industries Limited, Dahej Manufacturing Division, Dahej, P.O. Bharuch, District: Bharuch - 392130 Gujarat - 392130 Ph : 02641- 615001 E-mail : pavan.jain@ril.com
6	Salient features	
(a)	Of the Project	Already submitted to the Ministry of Environment & Forest, New Delhi based on which the aforesaid EC has been obtained. Obtained for capacity expansion (CAPEX) at Gandhar Petrochemical Complex. The complex comprises of CA, VCM,PVC,GCU,EPRU,EO/EG,HDPE,CPP &Utilities. After expansion the Capacity is increased from 19,20,000 TPA to 30,61,660 TPA. Best Available Technology in the world were selected for these plants& designed with state of art technology.
(b)	Of the Environment Management Plan	EMP was prepared based on the baseline data collected by NEERI and impact prediction were done using mathematical models and superimposition of those impacts on the baseline.

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		 EMP includes provision of state of the art Effluent Treatment Plant and Air Pollution control equipment, solid waste management and Green Belt development. Regular environment monitoring is also a part of EMP. Major points implemented as per EMP e.g. Developed full-fledged Environment Dept. headed by Environment Head reporting to HSEF- Head who in turn reports to Site President Modified neutralisation collection facility. Upgraded adsorber of incinerator plant.
7	Breakup of the project area	
(a)	Submergence Area : Forest & Non Forest	Not applicable, No additional land is required as capacity expansion is within existing petrochemical complex.
(b)	Others	Total area of petrochemical complex 700 ha. No additional land is required as this much area is available within existing petrochemical complex.
8	Breakup of the project affected population with enumeration of those losing houses / dwelling units only agricultural land only, both dwelling units and agricultural land and landless labourers / artisans : (a) SC, ST / Adivasi (b) Others (please indicate whether these figures are based on any scientific and systematic survey carried out or only provisional figures, if a survey is carried out give details & year of survey.	Not Applicable
9	Financial details	
(a)	Project cost as originally planned and subsequent revised estimates and the year of price reference	Cost of Project was Rs.425.26 crore in 2007
(b)	Allocation made for environmental management plan with item wise and year wise break up	Non-recurring (i.e. CAPEX) Rs. 40 Crore (Estimated cost: ETP & Drainage modification : Rs. 15 Crore, APCE : Injector for water in thermal oxidiser, revamp of adsorber of incinerator etc: Rs. 20 Crores, Solid Waste Mgt: Rs. 3 Crores and Green Belt Development - Rs. 2 crore) Recurring (i.e. OPEX) / year (O&M of ETP, Green Belt, Waste disposal, Env monitoring) – Rs.80 lakhs
(c)	Benefit / cost ratio / Internal Rate of Return and the year of assessment	Benefit / cost ratio for all our project is more than 1. Project has achieved IRR of more than 12%
(d)	Whether (c) includes the cost of environment management as shown above	Yes
(e)	Actual expenditure incurred on the project so far	Rs.425.26 crore

4)	Actual expenditure incurred on the environmental management plan so far	Non-recurring (i.e. CAPEX) Rs. 39 Crore (ETP & Drainage modification : Rs. 14 Crore, APCE : Injector for water in thermal oxidiser, revamp of adsorber of incinerator etc: Rs. 20 Crores, Solid Waste Mgt: Rs. 3 Crores and Green Belt Development - Rs. 2 crore) Recurring (i.e. OPEX) / year (O&M of ETP, Green Belt, Waste disposal, Env monitoring etc) – Rs.8 crore for FY15-16 and Rs. 5 crore for FY14- 15
10	 Forest land requirement a) The status of approval for diversion of forest land for non-forestry use b) The status of clearing/felling obtained. c) The status of CA , if any d) Comments on the viability and sustainability of CA programme in the light of actual field experience so far 	No requirement of Forest Land
11	The status of clear felling in non-forest areas (such as submergence area of reservoir, approach road etc) if any with quantitative information required	Not Applicable
12	Status of construction (Actual &/or planned) a) Date of commencement b) Date of completion	Capacity expansion of plant mentioned above was completed in 2007-08
13	Reason for delay (if project is yet to start)	Not Applicable
14	 Dates of site visit a) Date on which the project was monitored by the RO on previous occasion (if any) b) Date of the site visit for the monitoring report 	
15	Details of correspondence with project authorities for obtaining act onplans/ information on status of compliance to safeguards other than the routine letters for logistic support for site visits. (The first monitoring report may contain the details of all the letters issued so far, but the later reports may cover only the letter issued subsequently)	
Date	Letter from RO	Date Reply from PA
		13/09/2016 Mail Received from PA
	*	20/10/2016 Letter no. GPC/HSE/E/476/2010/2
		24/10/2016 Letter No.GPC/HSE/E/476/2010/40

PART – II & III

DESCRIPTIVE REPORT ON STATUS OF COMPLIANCE FOR THE PERIOD OF APRIL 2016 - SEPTEMBER, 2016 TO CONDITIONS OF ENVIRONMENTAL CLEARANCE AND ENVIRONMENTAL MANAGEMENT

O.M. No.: J-11011/482/2006-IA II (I) , dated 11th June 2007

SR. No.	Conditions of the EnvironmentClearance		oliance Status (- × -	
1	The gaseous emissions (SO2, NOx, CO, NMHC, Cl2 and HCl) from the various process units should conform to the standards prescribed under Environment (Protection Rules, 1986 or norms stipulated by the SPCB whichever is more stringent.	Gaseous emiss units are month its results show prescribed stand A summary of period Apr-Sept	ly monitored thi in below indica dards. the emission re	ough MoEF te the confe esults from	approv ormance process	ed age to the stacks	ncy and e GPCB
		Plant	Parameter	GPCBCon sent Limit	Avg	Min	Max
			PM (mg/Nm3)	150	12.42	11	14
			SO2 (mg/Nm3)	40	12.71	10.46	14.93
			NOx (mg/Nm3)	25	21.08	19.44	22.77
		VCM - Stack	HCI (mg/Nm3)	20	11.75	2.43	19.45
		attached to Incinerator	Cl2 (mg/Nm3)	9	1.38	1.32	1.41
		Inchierator	HC (mg/Nm3)	15	1.69	1.61	1.79
			CO (mg/Nm3)	150	0.67	0.59	0.77
			VCM(mg/Nm3)	6.6	ND	ND	ND
		Chlor Alkali	Cl2 (mg/Nm3)	9	ND	ND	ND
		Plant - Stacks Attached to Hypo and HCl synthesis Unit	HCI (mg/Nm3)	20	14.18	7.29	18.23
		PVC Plant-	PM (mg/Nm3)	150	12.50	10.00	14.00
		Stacks attached	SO2 (ppm)	100	5.11	4.57	6.12
		to PVC Dryers	NOx (ppm)	50	11.57	10.67	13.54
		PTA Plant -	PM (mg/Nm3)	150	ND	ND	ND
		Stacks attached to Off gas	SO2 (mg/Nm3)	40	ND	ND	ND
		scrubber, atmospheric scrubber and vent scrubber	NOx (mg/Nm3)	25	ND	ND	ND
	At no time the emission level shall go beyond the stipulated standards.	Details of the al Complied As informed,	n from the abo s conforming to pove results has during Apr-Se rescribed standa	the standa been subm pt'16, emis	rd stipul	lated by parately	/ GPCE
	In the event of failure of Pollution	Complied. Pollution contro	ol systems in th	e plant are	connec	ted thro	ough th
ð	control system(s) adopted by the unit, the respective unit should not be restarted until the control measures are rectified to achieve the	trigger/alarm is	n the event of fa raised in the DC and pollution co	CS system w	hich pro	events	the plan

	desired efficiency.	control equipm	ent has happer	ned	Such failu	re of pollutior
		Complied.				
2	Ambient air quality monitoring stations (SPM, SO2, NOx and NMHC) shall be set up in the petrochemical complex in consultation with SPCB, based on occurrence of maximum ground level concentration and down wind	The site has e within the petro the maximum (A summary of provided by PF	ochemical com Ground Level C f the AAQ mc	plex conside Concentration Initoring resu	ring wind in downw	directions and ind direction.
	concentration and down wind direction of wind.	Parameter	GPCB Consent Limit	Average	Min	Max
		PM ₁₀	100 µg/m ³	72.32	60	85
		PM _{2.5}	60 µg/m ³	36.71	27	52.00
		SO ₂	80 µg/m ³	5.70	2.1	9.3
		NOX	80 µg/m ³	9.90	6.2	14.3
		O3	180 µg/m ³	10.51	7.3	15.2
		NH ₃	400 µg/m ³	19.35	14	28.3
		CO	4 mg/m ³	1,14	0.92	1.37
		Benzene	5 µg/m ³	<1.0	<1.0	<1.0
	The monitoring network must be	Complied.				
	decided based on modelling	modeling carrie	ng network is ed out by NEEI	decided bas RI for short te	ed on the erm maxim	mathematic ium GLCs.
	decided based on modelling exercise to represent short term GLCs	modeling carrie	ed out by NEEI	RI for short te	erm maxim	ium GLCs.
	decided based on modelling exercise to represent short term	modeling carrie Complied. Continuous on for monitoring	ng network is ed out by NEEI line stack mon of SO2 and NC	RI for short te	erm maxim	ium GLCs.
	decided based on modelling exercise to represent short term GLCs Continuous online stack monitoring equipment should be installed for	modeling carrie Complied. Continuous on for monitoring Complied. VOCs (Benzer through MoEF being submitte	ed out by NEEI line stack mon of SO2 and NC ne) monitoring approved ag ed to the GPCB ene) are giver	RI for short te nitoring analys Dx in all stack in ambient a nency and th B/MoEF. The	erm maxim sers have (s. ir is being ie results monitoring	been provide done regular are reported results for th
	decided based on modelling exercise to represent short term GLCs Continuous online stack monitoring equipment should be installed for measurement of SO2 and NOx. Data on VOC shall be monitored and	modeling carrie Complied. Continuous on for monitoring Complied. VOCs (Benzer through MoEF being submitte VOCs (Benze condition no 2 VOCs at the p every plant un	ed out by NEEI line stack mon of SO2 and NC ne) monitoring approved ag ed to the GPCB ene) are giver	RI for short te hitoring analy Dx in all stack in ambient a lency and th MOEF. The n in the A4 are also repo	erm maxim sers have (s. ir is being the results monitoring AQM sump rtedly bein	been provide done regular are reported results for th mary table
	decided based on modelling exercise to represent short term GLCs Continuous online stack monitoring equipment should be installed for measurement of SO2 and NOx. Data on VOC shall be monitored and submitted to the SPCB/Ministry.	modeling carrie Complied. Continuous on for monitoring Complied. VOCs (Benzer through MoEF being submitte VOCs (Benze condition no 2 VOCs at the p every plant un Complied.	ed out by NEEI line stack mon of SO2 and NC ne) monitoring approved ag ed to the GPCB ene) are giver above process areas a der the Leak de	RI for short te nitoring analy Dx in all stack in ambient a gency and th MOEF. The n in the AA are also repo etection and	erm maxim sers have (s. ir is being the results monitoring AQM sump rtedly bein	been provide done regular are reported results for th mary table of
	decided based on modelling exercise to represent short term GLCs Continuous online stack monitoring equipment should be installed for measurement of SO2 and NOx. Data on VOC shall be monitored and	modeling carrie Complied. Continuous on for monitoring Complied. VOCs (Benzer through MoEF being submitte VOCs (Benzer condition no 2 VOCs at the p every plant un Complied. This condition	ed out by NEEI line stack mon of SO2 and NC ne) monitoring F approved ag ed to the GPCB ene) are giver above process areas a der the Leak do is not applica	RI for short te nitoring analy Dx in all stack in ambient a gency and th MOEF. The n in the AA are also repo etection and ble to PP.	erm maxim sers have ss. ir is being ie results monitoring AQM sum rtedly bein Repair Pro	done regular are reported results for the mary table of ogram (LDAR
3	decided based on modelling exercise to represent short term GLCs Continuous online stack monitoring equipment should be installed for measurement of SO2 and NOx. Data on VOC shall be monitored and submitted to the SPCB/Ministry.	modeling carrie Complied. Continuous on for monitoring Complied. VOCs (Benzer through MoEF being submittee VOCs (Benzer condition no 2 VOCs at the p every plant un Complied. This condition Fugitive emis monitored on by PID meters	ed out by NEEI line stack mon of SO2 and NC ne) monitoring approved ag ed to the GPCB ene) are giver above process areas a der the Leak de	RI for short te itoring analy Dx in all stack in ambient a lency and th MOEF. The n in the AA are also repo etection and ble to PP. from prod by LEL mete	erm maxim sers have (s. ir is being the results monitoring AQM sum rtedly bein Repair Pro uct storag rs and on	been provide done regular are reported results for th mary table o gram (LDAR) ge tanks ar monthly bas
3	decided based on modelling exercise to represent short term GLCs Continuous online stack monitoring equipment should be installed for measurement of SO2 and NOx. Data on VOC shall be monitored and submitted to the SPCB/Ministry. The CPCB shall independently monitor the air quality of the project. Fugitive emissions of HC from product storage tank yards etc. must	modeling carrie Complied. Continuous on for monitoring Complied. VOCs (Benzer through MoEF being submitte VOCs (Benzer condition no 2 VOCs at the p every plant un Complied. This condition Fugitive emis monitored on by PID meters Complied.	ed out by NEEI line stack mon of SO2 and NO he) monitoring approved ag ed to the GPCB ene) are giver above process areas a der the Leak do is not applica ssions of HC weekly basis to under the Lea	RI for short te itoring analy Dx in all stack in ambient a gency and th B/MoEF. The n in the A/4 are also repo etection and ble to PP. from prod by LEL mete k Detection a	erm maxim sers have (s. ir is being ne results monitoring AQM sum rtedly bein Repair Pro uct storag rs and on and Repair	been provide done regular are reported results for th mary table ogram (LDAR ge tanks ar monthly bas Program.
3	decided based on modelling exercise to represent short term GLCs Continuous online stack monitoring equipment should be installed for measurement of SO2 and NOx. Data on VOC shall be monitored and submitted to the SPCB/Ministry. The CPCB shall independently monitor the air quality of the project. Fugitive emissions of HC from product storage tank yards etc. must	modeling carrie Complied. Continuous on for monitoring Complied. VOCs (Benzer through MoEF being submitte VOCs (Benzer condition no 2 VOCs at the p every plant un Complied. This condition Fugitive emis monitored on by PID meters Complied. 370 LEL detect	ed out by NEEI line stack mon of SO2 and NO re) monitoring approved ag do the GPCB above process areas a der the Leak do is not applica sions of HC weekly basis t under the Lea	RI for short te itoring analy Dx in all stack in ambient a gency and th B/MoEF. The n in the A/4 are also repo etection and ble to PP. from prod by LEL mete k Detection a	erm maxim sers have (s. ir is being he results monitoring AQM sum rtedly bein Repair Pro uct storag rs and on and Repair ages have	been provide done regular are reported results for th mary table og monitored ogram (LDAR ge tanks at monthly bas Program.

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E.	The company shall use low sulphur fuel to minimize SO2 Emission.	The Low Sulfur fuels are used in the plant to minimize SO2 emissions. NG is usage maximized in the plant having sulphus content <1 ppm
		Complied.
4	The company shall install online O2 monitor in the furnaces	20 online O2 monitors are installed in the furnaces to keep the track of combustion efficiency.
		Complied.
	Boilers shall be operated with minimum excess air for optimal fuel consumption and to minimize NOx emission.	Boilers are reportedly operated at minimum excess air and the online O2 monitors in furnaces are used for optimization of the air/fuel ratio for minimizing excess air, thereby NOx generation is minimized Complied.
	Fire stack burners and steam injection system shall be designed for smokeless operation to minimize NOx emission.	Steam injection system is provided in flare stacks for reducing NOx generation and have smokeless operation.
5	For Control of fugitive emission, the company shall provide for a main flare system and an auxiliary flare system and route all unsaturated hydrocarbons to the flare system.	All plant vents containing unsaturated hydrocarbons are reportedly routed to the main flareand auxiliary flare (LP flare) system for controlling of fugitive emissions. An auxiliary flare system (LP flare) is provided for routing the discharge from the dump valve on cryogenic tanks.Whereas the main flare systemis provided for all process units and non cryogenic storage area
-		Complied.
	All the pump and other equipment's where there is like hood of HC leakage shall be provided with LEL indicators	370 LEL detectors for monitoring HC leakages have been installed at strategic locations like main pumps, compressors, storage tanks yards, etc.
		Complied.
	also provide for immediate isolation to such equipment, in case of a leakage,	Isolation of leaking equipment is immediately done based on the LEL detector alarm.
	The company shall adopt leak detection and repair (LDAR) programme for quantification and control of fugitive emissions.	LDAR program has been implemented in all plants for quantification and control of fugitive emissions. LDAR is carried out in each plant on guarterly basis. During the review period (Apr'16-Sep'16) the same were carried out at all the plants.
		Complied.
6	The product-loading gantry shall be connected to the product sphere in closed circuit through the vapour arm connected to the tanker	The product loading gantry is connected with the respective product tanks with vapor arm connected to the tanker. The vapors are recovered through vapor recovery system which consists of RARFS scrubber, membrane unit & activated carbon filters and then recovered material is sent back to the tank. This system is installed at Product loading gantry
1		Complied.
	Data on fugitive emissions shall be regularly monitored and records maintained.	Fugitive emissions are reportedly being regularly monitored through LDAR program and records maintained.
_		Complied.
7	The company shall ensure that no halogenated organic is sent to the flares	No halogenated organics are sent to flares. It is always sent to incinerator unit.
		Complied.
	If any of the halogenated organic are	Halogenated organics from VCM plant are incinerated in the

	Complied.								
carbon, other than halogenated shall be connected to proper flaring system, if not to a recovery device or	ic Emission stru all hydrocarbons ng Halogenated d	hydrocarbons, are stated to be connected to the existing flares Halogenated compounds are not sent to flare.							
an incinerator.									
All new standards/norms that are being proposed by the CPCB for petrochemical plants shall be applicable for the proposed expansion unit. The company shall conform to the process vent standards for organic chemical including non-VOCs and all possible VOCs i.e. TOCs standard and process vent standards for top priority chemicals	re The site is co or GPCB whiche The process d through MoEF and shown prescribed sta al e Summary of d Apr-Sep'16 as	nforming to the s ver is stringent. vents of variou approved agen below indicate ndard which is m nonthly monitore provided by PP i	us plants cy and its the confo ore stringer ed values f	are mo results rmance nt. for the	nthly r provide to the	nonito ed by e GP			
	Plant	Parameter	GPCB Consent Limit	Avg	Min	Max			
		PM (mg/Nm3)	150	12.42	11	14			
		SO2 (mg/Nm3)	40	12.71	10.46	14.93			
		NOx (mg/Nm3)	25	21.08	19.44	22.77			
	VCM - Stack	HCI (mg/Nm3)	20	11.75	2.43	19.45			
	attached to Incinerator	Cl2 (mg/Nm3)	9	1.38	1.32	1.41			
		HC (mg/Nm3)	15	1.69	1.61	1.79			
		CO (mg/Nm3)	150	0.67	0.59	0.77			
		VCM(mg/Nm3)	6.6	ND	ND	ND			
	Chlor Alkali Plant - Stacks	Cl2 (mg/Nm3)	9	ND	ND	ND			
	Attached to Hypo and HCI synthesis Unit	HCI (mg/Nm3)	20	14.18	7.29	18.23			
	PVC Plant-	PM (mg/Nm3)	150	12 50	10.00	11.00			
	Stacks attached to PVC Dryers	SO2 (ppm)	100	12.50 5.11	10.00	14.00 6.12			
		NOx (ppm)	50	11.57	10.67	13.54			
	PTA Plant - Stacks attached	PM (mg/Nm3)	150	ND	ND	ND			
	to Off gas scrubber,	SO2 (mg/Nm3)	40	ND	ND	ND			
	atmospheric scrubber and vent scrubber	NOx (mg/Nm3)	25	ND	ND	ND			

t e	ne control flue gas emission. Process mission shall be controlled by	Suitable air pollut scrubbers, cyclor requirement of res	spective plant to	control pro	cess em	issions	*
Fss	lue gas emission from the various tacks attached to the boiler,	Complied. Flue gas emiss furnaces/heaters agency. The summary of	are regularly fin	ion results	for the I		
		Sept' 16 as provi	ded by PP is pre Parameter	GPCB Consent Limit	Avg	Min	Max
		Flue gas emission	15				
		File gas enhouse		150	9.38	3.79	12
	0	GCU Plant -	PM (mg/Nm ³)	100	4.22	3.02	5.02
		Stack attached Furnaces	SO2 (ppm)	50	10.03	9.21	10.76
		1 21124-2-2	NOx (ppm)			10	15
		VCM Plant -	PM (mg/Nm ³)	150	12.89		6
		Stack attached to EDC	SO2 (ppm)	100	5.04	4.12	-
		Furnaces	NOx (ppm)	50	11.15	9.97	13.54
			PM (mg/Nm ³)	150	14.30	10	19
		CPP Plant - Boilers / HRSGs	SO2 (ppm)	100	3.79	2.28	6.16
		stacks	NOx (ppm)	100	13.33	8.21	18.09
			PM (mg/Nm ³)	150	9.06	7	12
		PET-3 Plant - Stacks attached	SO2 (ppm)	100	2.85	2.04	3.83
		to Heaters	NOx (ppm)	50	11.18	9.26	14.29
		during review p Detailed stack separately. Complied.	ults are conformi period of Apr-Set c emission mor	nitoring rep	ort has	been	provid
0	The additional effluent generation shall not exceed 39020 m ³ /d.	stated not to generation SEIAA/GUJ/E 44,600 m3/d	exceed 39.020	m /day. Ho escribed /2011 date	vide ed 23 rd	EC June	no 2011 x for the
		Description	Limit	Avg	Min		Max
		Effluent generation	44,600 m³/day	22,594	18,04		630
		From the abo	ove table it can te from the com missible limit of	DIEX IUI LITE	penou r	averag	ge efflu p'16 is '

1	HEILER	Complied.		
				4
		£		
	the tenerated shall be	Wastewater generate	d from the individual	process units it
	The wastewater generated shall be treated in comprehensive	treated in the compre of Primary, Secondary	hensive entiuent tied	unent facility co
	wastewater treatment plant.		and rondry a series	
	As reflected in the EIA/EMP report,	Complied. Advanced Anaerobio	c UASB system a	ind Membrane
	the company shall maximize the	Aeration system i.e.	Membrane Bioreac (RO) systems have	been commissi
	recycling of treated effluent	the plant for achieving	the maximum recyc	ling of treated wa
		Treated effluent is be	eing recycled within	the complex as
		tower make up, DM w	fluont generation	recycle and di
		tower make up, DM w The average of el quantities during re	vater production, gree ffluent generation, porting period of A Permissible limits p	recycle and di pr-Sep'16 is pr rescribed under
		tower make up, DM w The average of ei quantities during re below as against the accorded vide letter	vater production, gree	recycle and di pr-Sep'16 is pr rescribed under
		tower make up, DM w The average of el quantities during re	vater production, gree ffluent generation, porting period of A Permissible limits p no SEIAA/GUJ/EC/50	recycle and di pr-Sep'16 is pr rescribed under (e)&1(d)/124/201
		tower make up, DM w The average of ei quantities during re below as against the accorded vide letter	vater production, gree ffluent generation, porting period of A Permissible limits p	Ar beit developing recycle and di pr-Sep'16 is pr rescribed under (e)&1(d)/124/201 Average (KLD)
		tower make up, DM w The average of ei quantities during re below as against the accorded vide letter 23 rd June 2011 Description Quantity of Effluent	Permissible Limit	recycle and di pr-Sep'16 is pr rescribed under (e)&1(d)/124/201
		tower make up, DM w The average of ei quantities during re below as against the accorded vide letter 23 rd June 2011 Description	vater production, gree ffluent generation, porting period of A e Permissible limits p no SEIAA/GUJ/EC/50 Permissible Limit (KLD)	Ar beit developing recycle and di pr-Sep'16 is pr rescribed under (e)&1(d)/124/201 Average (KLD)
		tower make up, DM w The average of ei quantities during re below as against the accorded vide letter 23 rd June 2011 Description Quantity of Effluent Generation Quantity of Effluent	vater production, gree ffluent generation, porting period of A e Permissible limits p no SEIAA/GUJ/EC/50 Permissible Limit (KLD) 44,600	A beit developm recycle and di pr-Sep'16 is pr rescribed under (e)&1(d)/124/201 Average (KLD) 36,497 13,879 22,618
		tower make up, DM w The average of ei quantities during re below as against the accorded vide letter 23 rd June 2011 Description Quantity of Effluent Generation Quantity of Effluent Recycle Quantity of Effluent	vater production, gree ffluent generation, porting period of A e Permissible limits p no SEIAA/GUJ/EC/50 Permissible Limit (KLD) 44,600	A beit developm recycle and di pr-Sep'16 is pr rescribed under (e)&1(d)/124/201 Average (KLD) 36,497 13,879
		tower make up, DM w The average of ef- quantities during re below as against the accorded vide letter 23 rd June 2011 Description Quantity of Effluent Generation Quantity of Effluent Recycle Quantity of Effluent Discharge Percentage of Recycle	vater production, gree ffluent generation, porting period of A e Permissible limits p no SEIAA/GUJ/EC/50 44,600 14,080 30,520 32%	Arr beit developing recycle and di pr-Sep'16 is provided under (e)&1(d)/124/201 Average (KLD) 36,497 13,879 22,618 38%
		tower make up, DM w The average of ei quantities during re below as against the accorded vide letter 23 rd June 2011 Description Quantity of Effluent Generation Quantity of Effluent Recycle Quantity of Effluent Discharge Percentage of Recycle	vater production, gree ffluent generation, porting period of A e Permissible limits p no SEIAA/GUJ/EC/50 44,600 14,080 30,520 32%	Arr beit developing recycle and di pr-Sep'16 is provided under (e)&1(d)/124/201 Average (KLD) 36,497 13,879 22,618 38%
		tower make up, DM w The average of ef- quantities during re below as against the accorded vide letter 23 rd June 2011 Description Quantity of Effluent Generation Quantity of Effluent Recycle Quantity of Effluent Discharge Percentage of Recycle It can be seen from the effluent is maximized Complied.	vater production, gree ffluent generation, porting period of A e Permissible limits p no SEIAA/GUJ/EC/50 Permissible Limit (KLD) 44,600 14,080 30,520 32% the above table that the d against the limit	A beit developm recycle and di pr-Sep'16 is pr rescribed under (e)&1(d)/124/201 Average (KLD) 36,497 13,879 22,618 38% he quantity of tre
	Treated effluent after conforming to the prescribed standards shall be	tower make up, DM w The average of ef- quantities during re below as against the accorded vide letter 23 rd June 2011 Description Quantity of Effluent Generation Quantity of Effluent Recycle Quantity of Effluent Discharge Percentage of Recycle It can be seen from the effluent is maximized Complied.	vater production, gree ffluent generation, porting period of A e Permissible limits p no SEIAA/GUJ/EC/50 Permissible Limit (KLD) 44,600 14,080 30,520 32% the above table that the d against the limit being monitored or anothe quality	A beit developm recycle and di pr-Sep'16 is pr rescribed under (e)&1(d)/124/201 Average (KLD) 36,497 13,879 22,618 38% - ne quantity of tre
	Treated effluent after conforming to the prescribed standards shall be discharged through the existing marine disposal system.	tower make up, DM w The average of ef- quantities during re below as against the accorded vide letter 23 rd June 2011 Description Quantity of Effluent Generation Quantity of Effluent Recycle Quantity of Effluent Discharge Percentage of Recycle It can be seen from t effluent is maximized Complied. Treated effluent is MoEF approved ag well within the norr discharged through	vater production, gree ffluent generation, porting period of A e Permissible limits p no SEIAA/GUJ/EC/50 Permissible Limit (KLD) 44,600 14,080 30,520 32% the above table that the d against the limit	A per developm recycle and di pr-Sep'16 is pr rescribed under (e)&1(d)/124/201 Average (KLD) 36,497 13,879 22,618 38% ne quantity of tre n monthly basis of effluent is m MoEF and the
	the prescribed standards shall be discharged through the existing	tower make up, DM w The average of ef quantities during re below as against the accorded vide letter 23 rd June 2011 Description Quantity of Effluent Generation Quantity of Effluent Recycle Quantity of Effluent Discharge Percentage of Recycle It can be seen from the effluent is maximized Complied. Treated effluent is MoEF approved ag well within the nord discharged through to the standards.	vater production, gree ffluent generation, porting period of A e Permissible limits p no SEIAA/GUJ/EC/50 Permissible Limit (KLD) 44,600 14,080 30,520 32% the above table that the d against the limit being monitored or ency and the quality m prescribed by the	A verage (KLD) 36,497 13,879 22,618 38% 13,879 22,618 38% he quantity of tre MoEF and the system after co

			Unit	MoEF Limit	Average	Min	Max
	And a state of the second s	Parameter pH	-	6.5-8.5	7.40	6.82	7.62
		Total Suspended	mg/l	100	15.33	10.00	20.00
		Solids Oil & grease *	mg/l	20	ND	ND	ND
		Phenolic compounds	mg/l	5	ND	ND	ND
		(as C6H5OH) Cyanide (as CN)	mg/l	0.2	ND	ND	ND
		Fluorides (as	mg/l	15	0.46	0.36	0.55
		F) Sulphides*	mg/l	5	2.29	2.00	2.66
		BOD (3 days at 27°C)	mg/l	50	18.83	14.00	28.00
1		COD	mg/l	250	119.50	92.00	0
		Total Chromium (as Cr) *	mg/l	2	ND	ND	ND
		Hexavalent Chromium (as Cr+6) *	mg/l	1	ND	ND	ND
		Bioassay Test *	-	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent the norm for t		-
		within	esults i t	ndicate that t he	he treated efflu prescribed pring report h		menne
		The above rewithin Detailed treatseparately. Complied.	esults i t	ndicate that the the the the the the the the the th	prescribed	as been	provide
	A holding pond for treated effluent for bio test shall be constructed before discharging the effluent into the sea.	The above rewithin Detailed treat separately. Complied. Bioassay test with the test are taken as carried out if survival of fit review period test is provide	esults i t ated e t for m conta t for m conta for m conta conta fo conta fo conta	ndicate that the filuent monitor iners for the laboratory as r 96 hours in or'16 –Sep'16 he above con	city is conducted for this expering for this expering per the IS 65 100% effluent , The analysis dition.	as been ed in the t. The lu nent and i82. Res is achie results c	provide laborator ocal fishe the test ult of 90 ⁴ ved for th of Bioassa
	A holding pond for treated effluent for bio test shall be constructed before discharging the effluent into	The above rewithin Detailed treat separately. Complied. Bioassay test with the test are taken as carried out if survival of fit review periot test is provid Complied. The domest biological s approval from being reuse belt develop The avera	esults i t ated e ated e ated e at for m conta the Te sh afte d of Ap led in t ic efflu ection m GPC d as C oment. ge of	ndicate that the fluent monito iners for the f aboratory as r 96 hours in or'16 –Sep'16 he above con uent generate of the efflue 28 and it confr ove, about 1 W make up, I effluent gen	city is conducted for this expering for this expering per the IS 65 100% effluent The analysis	ed in the t. The lu- nent and is achie results c ite is tre plant wit escribed. treated uction an cle and en'16 is	provide laborator ocal fishe the test ult of 90° ved for th of Bioassa ated in th h the pri standards effluent nd for gre dischar

int.		Complied.					
	we wand the prescribed standards.	At no time, emissions have exe during the reporting period of Apr	ceeded the Sep'16.	stipulated	standar		
		Complied.					
	In the event of failure of any pollution control system adopted by the units, the respective unit should be immediately put out of operation and should not be restarted unit the desired efficiency has been achieved	Pollution control systems in the DCS system. In the event of fail trigger/alarm is raised in the DCS from restarting. During the period of Apr-Sep'16, equipment has been observed.	ure of pollutions system whice	on control ch prevents	system s the pla		
		Complied. Noise level at the site is moni		anthly honi	ia throu		
īv	The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA)	MoEF approved agency and it is prescribed workplace nois The summary of Workplace No Apr-Sept' 16 as provided by PP is	s observed t se level vise Level m s presented b	to be well of 8 onitoring r	within 1 5 dE reports		
		Plants	Average	Min	Max		
		Chlor Alkali Plant	61.88	57.20	67,90		
		VCM Plant	58.78	53.50	61.60		
		PVC Plant	62.55	51.20	73.30		
		EO-EG Plant	59.90	54.90	67.00		
		GCU Plant	66.39	56.50	70.30		
		EPRU	60.64	58.20	63.60		
		OSBL	53.42	50.60	55.80		
		HDPE	62.51	50.20	69.50		
		CPP I	62.14	52.40	84.60		
		CPP II	65.89	55.60	74.40		
		CPP III	62.23	45.20	76.70		
		PTD (Tankfarm)	56.32	52.40	59.80		
		PET-3	55.42	48.90	59.30		
		PTA-5	59.18	35.50	75.40		
		PTA-6	53.49	43:50	62.50		
		IOP - Air Separation Unit	61.07	59,50	61.80		
		IOP - Compressor House	57.00	56.10	58.20		
		IOP - Raw Water treatment Plant	62.10	58.10	64.30		
		IOP - Fire water treatment plant	60.02	57.60	66.50		
		Detailed monitoring report is sub	mitted separa	ately.			
	D	Complied.	ouroa inclus	ling occurs	tic has		
	By providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of	Provision of noise control mea silencers, enclosures etc. has b noise generation.	een made fo	or all source	es of h		

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	ambient noise levels shou enroum to the standards prescrib one, EPA Rules, 1986 viz. 75 dE Day Times) and 70 dBA (Night tim	ed EPA Rules, BA time).	v of the a	o uba	(Day I	imes) and	70 dB	A (Ni
		Monitoring Location	Da (Limit	y Time - 75dB		Nig (Limit	ht Time - 70dB	A)
		Security	Average	Min	Max	Average	Min	Max
		Building	62.8	61.3	63.8	57.7	55.8	59.2
	and the second se	Guest House Pump House	58.7 63.3	57.1	59.8	55.5	54.1	57.
		Main Fire	60.40	62.4	64.4	59.8	58.1	61.
		Station ETP	59.6	58.90 58.1	61.8	55.28	-52.10	58.3
		Jetty	52.2	50.4	62.1 53.2	54.7 49.9	51.8 48.1	56.8
		Jageshwar Village	52.8	52.1	53.9	49.3	47.6	50.9
		Detailed monit	oring report	has he		mittod cons	47.0	50.4
v The project authorities must strictly comply with the provisions made in Manufacture, Storage and Import of Hazardous Chemicals Rules 1989 as amended in 2000 for handling of Provisions of the Ma Chemicals (MSIHC) complied, by ensuring Preparation regularly	Qp	1100 00	ch sub	mitteu sepa	arately.			
	hazardous chemicals etc.	Provisio	ation of eme cting mock of on emerge cement etc.	rills on	regular	basis	(e sire	ens
		widitial	aid arrange	allu en	surina ti	heir haalthi	nana	
	Necessary approvals from Chief Control of Explosives must be provided before commission of the project.	Complied. The approvals Explosives are commissioning of	required for	storag	th neigh	heir healthi nboring indi	ness ustries,	
vi	The project authorities must strictly	Complied. The approvals of Explosives are commissioning of Complied.	required for in place of the projec	storag and and	th neigh th neigh e of Ho they	heir healthin hooring indi C from Chi were obta	ness ustries, ief Cont lined E	rol o before
vi	Control of Explosives must be provided before commission of the project. The project authorities must strictly comply with the rules and regulations with the Hazardous Wastes (Management and Handling) Rules, 2003.	Complied. The approvals of Explosives are commissioning of Complied. Handling and Di being done in Handling Rules 2 Complied.	required for in place of the project sposal of H accordance 2003 and its	storag and en storag and t. lazardo with subsec	e of Ho th neigh e of Ho they us was the Ha juent ar	heir healthin hooring indi C from Chi were obta tes genera zardous w nendments	ness ustries, ief Cont lined b ted at s vaste (N thereof	ite is M&H)
VI	Control of Explosives must be provided before commission of the project. The project authorities must strictly comply with the rules and regulations with the Hazardous Wastes (Management and Handling) Rules, 2003. Authorization form the State Pollution Control Board must be obtained for collection/treatment/ Storage/ disposal of hazardous wastes.	Complied. The approvals of Explosives are commissioning of Complied. Handling and Di being done in Handling Rules 2 Complied. Hazardous waste collection/treatment Authorization (W storage/ disposal up to 03.11.2020,	required for in place of the project sposal of H accordance 2003 and its e Authorizat ent/ storage, /-76082) fr of hazardo	storag and t. lazardo with subsec ion has dispos om Gf us was	e of Ho th neigh e of Ho they us was the Ha juent ar been o al of ha PCB fo tes is a	tes genera boring indi C from Chi were obta tes genera zardous w nendments btained fro zardous wa collectio available. wi	ness ustries, ief Cont nined t ted at s vaste (M thereof m GPC, astes, n/treatm hich is v	ite is ite is /&H) B for nent/ valid
vi	Control of Explosives must be provided before commission of the project. The project authorities must strictly comply with the rules and regulations with the Hazardous Wastes (Management and Handling) Rules, 2003. Authorization form the State Pollution Control Board must be obtained for collection/treatment/ Storage/ disposal of hazardous wastes.	Complied. The approvals of Explosives are commissioning of Complied. Handling and Di being done in Handling Rules 2 Complied. Hazardous waste collection/treatment Authorization (W storage/ disposal up to 03.11.2020. Quantity of Haza during reporting separately. Copy of Form - 4	required for in place of the project sposal of H accordance 2003 and its e Authorizat ent/ storage. /-76082) fr of hazardo ardous was period Apr	ion has dispos d	e of Ho th neigh e of Ho they us was the Ha juent ar been o al of ha PCB fo tes is a lected, has t	tes general zardous wa boring indi C from Chi were obta tes general zardous wa nendments btained fro zardous wa or collectio available wi stored an peen provid	ness ustries, ief Cont ined t ted at s vaste (M thereof m GPC astes, n/treatm hich is v d dispo ded by	ite is ite is A&H) B for hent/ valid PP
vi	Control of Explosives must be provided before commission of the project. The project authorities must strictly comply with the rules and regulations with the Hazardous Wastes (Management and Handling) Rules, 2003. Authorization form the State Pollution Control Board must be obtained for collection/treatment/ Storage/ disposal of hazardous wastes.	Complied. The approvals of Explosives are commissioning of Complied. Handling and Di being done in Handling Rules 2 Complied. Hazardous waste collection/treatment Authorization (Wa storage/ disposal up to 03.11.2020, Quantity of Hazard during reporting separately. Copy of Form - 4 been submitted se	required for in place of the project sposal of H accordance 2003 and its e Authorizat ent/ storage. /-76082) fr of hazardo ardous was period Apr	ion has dispos d	e of Ho th neigh e of Ho they us was the Ha juent ar been o al of ha PCB fo tes is a lected, has t	tes general zardous wa boring indi C from Chi were obta tes general zardous wa nendments btained fro zardous wa or collectio available wi stored an peen provid	ness ustries, ief Cont ined t ted at s vaste (M thereof m GPC astes, n/treatm hich is v d dispo ded by	ite is ite is M&H)) B for nent/ valid PP
	Control of Explosives must be provided before commission of the project. The project authorities must strictly comply with the rules and regulations with the Hazardous Wastes (Management and Handling) Rules, 2003. Authorization form the State Pollution Control Board must be obtained for collection/treatment/ Storage/ disposal of hazardous wastes.	Complied. The approvals of Explosives are commissioning of Complied. Handling and Di being done in Handling Rules 2 Complied. Hazardous waste collection/treatment Authorization (W storage/ disposal up to 03.11.2020. Quantity of Haza during reporting separately. Copy of Form - 4	required for in place of the project sposal of H accordance 2003 and its e Authorizat ent/ storage, /-76082) fr of hazardo ardous was period Apr submitted t eparately.	ion has om GPCI	e of Ho they us was the Ha juent ar been o al of ha PCB fo tes is a lected, has t	heir healthin boring indi C from Chi were obta tes genera izardous w nendments btained fro zardous wa or collectio available wi stored an been provid e year 201	ness ustries, ief Cont lined b ted at s vaste (N thereof m GPC astes, n/treatm hich is d dispo ded by 5-2016	ite is n&H) B for valid PP has

	the implementation schedule for a the conditions stipulated herein.	
/	The funds so provided should not be diverted for any other purpose.	used only for the said purpose. They are not diverted for othe activities at site.
vii	monitored by the Regional of this Ministry at Bhopal/ Central Pollution Control Board/ State Pollution Control Board.	Board monitored conditions of consent.
ix	A six monthly compliance report and the monitored data should be submitted to them regularly.	 Six monthly compliance report and monitoring data is submitted to MoEF regularly. Last Compliance report was submitted vide ou letter no. GPC/HSE/E/476/0106 dated 31st may 2016. Also Stacks Ambient Air Quality Effluent, Noise monitoring reports & Hazardous reports are submitted to GPCB on monthly basis. Complied.
	the public that the project has been accorded environmental clearance by the Ministry and copies of the 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://www.envfor.nic.in This should be advertised within seven days form the date of issue of the clearance letter at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and copy of the same should be forwarded to the Regional office.	It has been stated that public has been informed about the Environment Clearance accorded to this project through Newspaper in English and Gujarati language. The copy of the newspaper publication has been reportedly submitted to the MoEF along with the first compliance report of this EC. It is gathered that the advertisement was published in Tol, Surati on 30.08.2007 and in Gujarati News Paper namely Sandesh on 30.08.2007.
×	The project Authorities shall inform the Regional Office as well as the Ministry, the date of financial closures and the date of the commencing the land development work.	The project is completed and commissioned. The necessary information about the project's financial closure and project commencement was reportedly provided along with the first compliance report of this EC.
5	The ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory	This condition is not applicable to PP
	The ministry reserves the right to stipulate additional conditions if found necessary.	This condition is not applicable to PP.
	conditions	Company has informed that they had implemented all the conditions prescribed by the Ministry in this EC.
	The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air ((Prevention & Control of Pollution) Act 1981, The	This condition is not applicable to PP but taken cognizance.

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Environment (Protection) Act, 1986, Hazardous Wastes (Management And Handling) Rules 2003 and the Public Liability Insurance Act,1991 along with their amendments and rules.

The compliance of EC conditions is good. Out of 27 conditions, 23 are found to have been complied, 3 are not applicable to the PP and one condition needs only taking note/ cognizance .

Court Cases and Show cause notices issued:

It has been reported that there is no court case on this project

	a locued during last three years.	Data	Reply from PA
etails of Notic	ces issued during last three years. Details of Directions by CPCB/	Date	
etter no. SPCB-HAZ- SEN-	Show Cause Notice (SCN) issued by GPCB, if any Show Cause Notice issued by GPCB regarding observation of no submission of monthly data	Letter No. RIL/HSE/E/47 4 dated 19.06.2015	Replied to notice with supporting evidences as we are regularly submitting the details as a part of GPCB Monthly Report in hard copy to GPCB Regional Office Bharuch
503/316347 dated 04.06.2015	of hazardous water our captive incinerated at our captive TSDF/Incinerator and foresaid details.		and GPCB Gandminger are submitting the required details in GPCB XGN portal. Therefore it is resolved. The query was resolved and no further action has been initiated.
Letter no B-29016/ 04/06/PCI- 1/44989 dt 24.07.2015 received of 24.08.2015	d. monitoring systems		 Documentary evidence installation of CAPEX raised for installation of online emission & effluent monitoring system. Letter to CPCB through CPM/ dtd. 24.06.2015 providing time schedule for completion of establishing online facilities and connecting to GPCB/CPCB server by December 2016.
			Continuous Emissions Monitorin System is installed an commissioned in all stacks and ETP outlet.

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Monitoring the Implementation of Environmental Safe Guards Ministry of Environment & Forest Western Region, Regional Office, Bhopal MONITORING REPORT PART-I

DATA SHEET

1	Project type: River Valley/Mining/Industry / Industry, Thermal/Nuclear/Other (Specify)	Industry (Petrochemical)
2	Name of the Project	Expansion project of M/s Reliance Industries Limited, Dahej
3	Clearance letter (s) OM No. & date	No. J-11011/402/2007- IA II (I) dated 20 th March 2008
4	Location Districts State Location- Latitude/Longitude	Dahej Bharuch Gujarat Latitude : $21^{0}40'35$ "N & $21^{0}41'27$ "N Longitude : $72^{0}33'32$ "E & $72^{0}35'04$ "N
5	Address for Correspondence	
(a)	Address of the concerned Project Chief Engineer (with Pin Code & telephone / telex / fax numbers	Shri Pavan K. Jain Site President, Reliance Industries Limited, Dahej Manufacturing Division, Dahej, P.O. Bharuch, District: Bharuch - 392130 Gujarat - 392130 Ph : 02641- 615001 E-mail : pavan.jain@ril.com
(b)	Address of Executive Project Engineer / Manager (with Pin code /fax numbers)	Shri Pavan K. Jain Site President, Reliance Industries Limited, Dahej Manufacturing Division, Dahej, P.O. Bharuch, District: Bharuch - 392130 Gujarat - 392130 Ph : 02641- 615001 E-mail : pavan.jain@ril.com
6	Salient features	
(a)	Of the Project	Already submitted to the Ministry of Environment & Forest, New Delhi based on which the aforesaid EC has been obtained. Obtained for capacity expansion for EO/EG, HDPE. EVA& CPPat Dahej Petrochemical Complex. Increased the capacity of EO/EG from 250,260 to 399,760 MTPA, HDPE from 160,000 to 220,000 & capacity of new EVA plant is 13,000 MTPA. Capacity of CPP increased to 195 MW from 154 MW.
(b)	Of the Environment Management Plan	It is designed with state of art technology. EMP was prepared based on the baseline data collected by NEERI and impact prediction were done using mathematical models and

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7	Breakup of the project area	 superimposition of those impacts on the baseline EMP includes provision of state of the art Effluent Treatment Plant and Air Pollution control equipment, solid waste management and Green Belt development. Regular environment monitoring is also a part of EMP. Major points implemented as per EMP e.g. Maximised the usage of cleaner fuel such as Natural Gas. Provided tanks with internal floating roof with flexible double seal Provided mechanical seal in pumps. Acoustic enclosures/barriers provided in noisy workplaces. Maximise treated effluent within the complex.
(a)	Submergence Area : Forest & Non Forest	Not applicable, No additional land is required as expansion of project was within existing petrochemical complex.
(b)	Others	The land requirement for the project was around 18 ha which was accommodated within 700 ha of existing petrochemical complex
8	Breakup of the project affected population with enumeration of those losing houses / dwelling units only agricultural land only, both dwelling units and agricultural land and landless labourers / artisans : (a) SC, ST / Adivasi (b) Others (please indicate whether these figures are based on any scientific and systematic survey carried out or only provisional figures, if a survey is carried out give details & year of survey. Financial details	Not Applicable
-		
(a)	Project cost as originally planned and subsequent revised estimates and the year of price reference	Cost of Project was Rs.228crore in 2008
(b)	Allocation made for environmental management plan with item wise and year wise break up	Non-recurring (i.e. CAPEX) Rs. 25 Crore (Estimated cost: ETP – Revamp of neutralisation facility & Drainage modification : Rs. 7 Crore, APCE : Installation of CO2 removal system from waste gases, HC recovery etc: Rs. 15 Crore Solid Waste Mgt: Rs. 2 Crore and Green Belt Development - Rs. 1 Crore) Recurring (i.e. OPEX) / year (O&M of ETP, Green Belt, Waste disposal, Env monitoring) – Rs.40 lakhs
(c)	Benefit / cost ratio / Internal Rate of Return and the year of assessment	Benefit / cost ratio for all our project is more than
(d)	1911 14 2 2 4 2 4 2	1. Project has achieved IRR of more than 12% Yes
	environment management as shown above	3.55

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	so far	08
(f)	Actual expenditure incurred on the	he Non-recurring (i.e. CAPEX) Rs. 35 Crore
	environmental management plan so far	(ETP – Revamp of neutralisation facility of Drainage modification : Rs. 7 Crore, APCE : Installation of CO2 removal system from waste gases, HC recovery etc: Rs. 25 Crore Solid Waste Mgt: Rs. 2 Crore and Green Belt Development - Rs. 1 Crore)
10	Forest land requirement	Recurring / year (O&M of ETP, Green Belt Waste disposal, Env monitoring etc) – Rs.8 crore for FY 15-16 and 5 crore for FY 14-15
	 a) The status of approval for diversion of forest land for non-forestry use b) The status of clearing/felling obtained. c) The status of CA, if any d) Comments on the viability and sustainability of CA programme in the light of actual field experience so far 	No requirement of Forest Land
11	The status of clear felling in non-forest areas (such as submergence area of reservoir, approach road etc) if any with quantitative information required	
12	Status of construction (Actual &/or planned) a) Date of commencement b) Date of completion	Capacity expansion of plant mentioned above was completed in 2008-09
13	Reason for delay (if project is yet to start)	N. A. N. M.
4	Dates of site visit	Not Applicable
~	 a) Date on which the project was monitored by the RO on previous occasion (if any) b) Date of the site visit for the monitoring report 	30.09.2016
	Details of correspondence with project authorities for obtaining act onplans/ information on status of compliance to safeguards other than the routine letters for logistic support for site visits. (The first monitoring report may contain the details of all the letters issued so far, but the later reports may cover only the letter issued subsequently)	As below -
ate	Letter from RO	Date Reply from DA
		Date Reply from PA 13/09/2016 Mail Received from PA
		20/10/2016 Letter no. GPC/HSE/E/476/2010/3
		24/10/2016 Letter No. GPC/HSE/E/476/2010/3

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ESCRIPTIVE REPORT ON STATUS OF COMPLIANCE FOR THE PERIOD OF APRIL 2016 - SEPTEMBER, 2016 TO CONDITIONS OF ENVIRONMENTAL CLEARANCE AND ENVIRONMENTAL MANAGEMENT

O.M. No.: . J-11011/402/2007-IA II (I), dated 20th March 2008

SR.	Conditions of the Environment Clearance			Status of the				
No.	M/s. RIL shall comply with proposed Effluent and Emission Standards for Petrochemical Plants of CPCB/MoEF for the proposed expansion	Effluent discharg monthly monitore shown below in standards. The summary of Sept' 16 as prov	ed throu dicate 1	ugh MoEF ap the conforma d effluent qua	nce to the lity monit	ne Mo	DEF pre	scribe
		Parameter	Unit	MoEF Limit	Average		Min	Max
		pH	-	6.5-8.5	7.40		6.82	7 62
		Total Suspended Solids	mg/l	100	15.33		10.00	20.00
		Oil & grease *	mg/l	20	ND		ND	ND
		Phenolic compounds (as C6H5OH)	mg/l	5	ND		ND .	ND
		Cyanide (as CN)	mg/l	0.2	ND		ND	ND
		Fluorides (as F)	mg/l	15	0.46		0.36	0.55
		Sulphides*	mg/l	5	2.29		2.00	2.66
		BOD (3 days at	mg/l	50	18.83		14.00	28.0
		27°C) COD	mg/l	250	119.50		92.00	165. 0
		Total Chromium	mg/l	2	ND		ND	ND
		(as Cr) * Hexavalent Chromium (as	mg/l	1	ND		ND	ND
		Cr+6) * Bioassay Test *	-	90% survival of fish after 96 hours in 100% effluent	90% sur of fish at 96 hours 100% effluent	fter s in	* *	-
		(Note : * As M GPCB standard A summary of period Apr-Sep	d is con the en ot 16 as	96 hours in 100% effluent as not notifie sidered) nission result provided by	96 hours 100% effluent d the not ts from p PP is giv MoEF	rm for	s stack	
		Plant	1	ameter	Limit	-	1	14
				ng/Nm3) *	150 40	12.42		14.9
	÷			mg/Nm3) *	25	21.08	-	22.7
		VCM - Stack		(mg/Nm3)	20	11.75	-	19,4
		attached to		(mg/Nm3)	9	1.38	-	1,4
		Incinerator	-	(mg/Nm3)	15	1.69	-	1.7
			1		150	0.67	0.59	0.7
			COL	(mg/Nm3)	100	0.01	1000	and the second se

		Chlor Alkali	Cl2 (mg/Nm3)	9	ND	ND	NU
Ē		Plant - Stacks Attached to Hypo and HCl synthesis Unit	HCl (mg/Nm3)	20	14.18	7.29	18.23
12		1	PM (mg/Nm3) *	150	12.50	10.00	14.00
		PVC Plant- Stacks attached	SO2 (ppm) *	100	5.11	4.57	6.12
		to PVC Dryers	NOx (ppm) *	50	11.57	10.67	13.54
il ne contra de la		PTA Plant -	PM (mg/Nm3) *	150	ND	ND	ND
-		Stacks attached	SO2 (mg/Nm3) *	40	ND	ND	ND
		to Off gas scrubber, atmospheric scrubber and vent scrubber	NOx (mg/Nm3) *	25	ND	ND	ND
		GPCB standard It can be seen quality and gas conforming to th	EF has not notifi s is considered) from the above d secus emissions he stipulated stan bove Treated effl Its have been sub	lata tables released dards. uent monite	that eff from th	luent d le com	ischarg plex ar
	the condition stipulated by the Ministry for the CAPEX project at Gandhar Petrochemical Complex vide Ministry letter No. J11011/482/2006IA.II(i) dated June 11, 2007 The gaseous emissions (SO ₂ , NOx, CO, NMHC, Cl ₂ and HCI) from the various process units should in conform to the standards prescribed under Environment (Protection					ed sepa	
II	Gandhar Petrochemical Complex vide Ministry letter No. J11011/482/2006IA.II(i) dated June 11, 2007 The gaseous emissions (SO ₂ , NOx, CO, NMHC, Cl ₂ and HCI) from the various process units should conform to the standards prescribed under Environment (Protection Rules, 1986 or norms stipulated by	units are mont its results sho prescribed sta	sions of SO ₂ , NO hly monitored thr wn below indica ndards.	Dx, HC, Cl ough MoEl te the con	and H F approforman	ICI from oved ag ce to ti	n proce ency a ne GPC ks for t
	Gandhar Petrochemical Complex vide Ministry letter No. J11011/482/2006IA.II(i) dated June 11, 2007 The gaseous emissions (SO ₂ , NOx, CO, NMHC, Cl ₂ and HCI) from the various process units should conform to the standards prescribed	Gaseous emis units are mont its results sho prescribed sta	sions of SO ₂ , NO hly monitored thr wyn below indica ndards.	Dx, HC, Cl ough MoEl te the con	and H F appro forman	ICI from oved ag ce to the ss stacted below	n proce ency a ne GPC ks for f
	Gandhar Petrochemical Complex vide Ministry letter No. J11011/482/2006IA.II(i) dated June 11, 2007 The gaseous emissions (SO ₂ , NOx, CO, NMHC, Cl ₂ and HCl) from the various process units should conform to the standards prescribed under Environment (Protection Rules, 1986 or norms stipulated by the SPCB whichever is more	Gaseous emis units are mont its results sho prescribed sta A summary o period Apr-Se	sions of SO ₂ , NO hly monitored thr who below indica ndards. f the emission re pt' 16 as provideo Parameter	Dx, HC, Cl ough MoEl te the con esults from by PP is p GPCBCon sent Limit	pand H F approforman procesente Avg	ICI fron oved ag ce to ti ed belov Min	n proce ency an ne GPC ks for t N.
	Gandhar Petrochemical Complex vide Ministry letter No. J11011/482/2006IA.II(i) dated June 11, 2007 The gaseous emissions (SO ₂ , NOx, CO, NMHC, Cl ₂ and HCl) from the various process units should conform to the standards prescribed under Environment (Protection Rules, 1986 or norms stipulated by the SPCB whichever is more	Gaseous emis units are mont its results sho prescribed sta A summary o period Apr-Se	sions of SO ₂ , NG hly monitored thr who below indica ndards. f the emission re pt' 16 as provideo Parameter PM (mg/Nm3)	Dx, HC, Cl ough MoEl te the con esults from by PP is p GPCBCon sent Limit	and H F appro forman procesente Avg	ICI from oved ag ce to the ss stack ed below Min 2 11	n proce ency a ne GPC ks for t N. Max
	Gandhar Petrochemical Complex vide Ministry letter No. J11011/482/2006IA.II(i) dated June 11, 2007 The gaseous emissions (SO ₂ , NOx, CO, NMHC, Cl ₂ and HCl) from the various process units should conform to the standards prescribed under Environment (Protection Rules, 1986 or norms stipulated by the SPCB whichever is more	Gaseous emis units are mont its results sho prescribed sta A summary o period Apr-Se	sions of SO ₂ , NO hly monitored thr why below indica ndards. f the emission re pt' 16 as provided Parameter PM (mg/Nm3) SO2 (mg/Nm3)	Dx, HC, Cl rough MoEl te the con esults from I by PP is p GPCBCon sent Limit	and F F appro forman proce: resente Avg 12.4	ICI from oved ag ce to ti ss stac ed below Min 2 11 1 10.4	m proce ency a ne GPC ks for 1 Max Max 14 6 14.9
	Gandhar Petrochemical Complex vide Ministry letter No. J11011/482/2006IA.II(i) dated June 11, 2007 The gaseous emissions (SO ₂ , NOx, CO, NMHC, Cl ₂ and HCl) from the various process units should conform to the standards prescribed under Environment (Protection Rules, 1986 or norms stipulated by the SPCB whichever is more	Gaseous emis units are mont its results sho prescribed sta A summary o period Apr-Se Plant	sions of SO ₂ , NO hly monitored thr why below indica ndards. f the emission re pt' 16 as provided Parameter PM (mg/Nm3) SO2 (mg/Nm3) NOx (mg/Nm3)	Dx, HC, Cl ₂ rough MoEl te the con esults from by PP is p GPCBCon sent Limit 150 40 25	and H F appro forman procesente Avg	ICI from oved ag ce to ti ss stac ed belov Min 2 11 1 10.4 8 19.4	Maxim
	Gandhar Petrochemical Complex vide Ministry letter No. J11011/482/2006IA.II(i) dated June 11, 2007 The gaseous emissions (SO ₂ , NOx, CO, NMHC, Cl ₂ and HCl) from the various process units should conform to the standards prescribed under Environment (Protection Rules, 1986 or norms stipulated by the SPCB whichever is more	Gaseous emis units are mont its results sho prescribed sta A summary o period Apr-Se	sions of SO ₂ , NG hly monitored thr why below indicand ndards. f the emission re pt' 16 as provided Parameter PM (mg/Nm3) SO2 (mg/Nm3) HCI (mg/Nm3)	Dx, HC, Cla rough MoEl te the con esults from by PP is p GPCBCon sent Limit 150 40 25 20	and H F appro forman proces resente Avg 12.4 12.7 21.0 11.7	ICI from oved ag ce to the ss stack ed below Min 2 11 1 10.4 8 19.4 5 2.43	n proce ency a ne GP(ks for 1 N. Max 14 6 14.5 4 22.7 3 19.4
	Gandhar Petrochemical Complex vide Ministry letter No. J11011/482/2006IA.II(i) dated June 11, 2007 The gaseous emissions (SO ₂ , NOx, CO, NMHC, Cl ₂ and HCl) from the various process units should conform to the standards prescribed under Environment (Protection Rules, 1986 or norms stipulated by the SPCB whichever is more	Gaseous emis units are mont its results sho prescribed sta A summary o period Apr-Se Plant	sions of SO ₂ , NG hly monitored thr why below indicand ndards. f the emission re pt' 16 as provided Parameter PM (mg/Nm3) SO2 (mg/Nm3) NOx (mg/Nm3) Cl2 (mg/Nm3)	Dx, HC, Cl ough MoEl te the con esults from by PP is p GPCBCon sent Limit 150 40 25 20 9	2 and F F approforman proce resente Avg 12.4 12.7 21.0 11.7 1.3	ICI from oved ag ce to ti ss stac ed below Min 2 11 1 10.4 8 19.4 5 2.4 3 1.3	n proce ency a ne GP(ks for 4 N. Max 14 6 14.9 4 22.7 3 19.4 2 1.4
	Gandhar Petrochemical Complex vide Ministry letter No. J11011/482/2006IA.II(i) dated June 11, 2007 The gaseous emissions (SO ₂ , NOx, CO, NMHC, Cl ₂ and HCl) from the various process units should conform to the standards prescribed under Environment (Protection Rules, 1986 or norms stipulated by the SPCB whichever is more	Gaseous emis units are mont its results sho prescribed sta A summary o period Apr-Se Plant VCM - Stack attached to	sions of SO ₂ , NO hly monitored thr wm below indica ndards. f the emission re pt' 16 as provided Parameter PM (mg/Nm3) SO2 (mg/Nm3) HCI (mg/Nm3) HCI (mg/Nm3) HC (mg/Nm3)	Dx, HC, Cl ough MoEl te the con esults from I by PP is p GPCBCon sent Limit 150 40 25 20 9 15	and H F appro forman proces resente Avg 12.4 12.7 21.0 11.7	ICI from oved ag ce to ti ss stac ed belov Min 2 11 1 10.4 8 19.4 5 2.43 3 1.33 9 1.6	n proce ency a ne GPC ks for 1 N. Max 14 6 14.9 4 22.7 3 19.4 2 1.4 1 1.7
	Gandhar Petrochemical Complex vide Ministry letter No. J11011/482/2006IA.II(i) dated June 11, 2007 The gaseous emissions (SO ₂ , NOx, CO, NMHC, Cl ₂ and HCl) from the various process units should conform to the standards prescribed under Environment (Protection Rules, 1986 or norms stipulated by the SPCB whichever is more	Gaseous emis units are mont its results sho prescribed sta A summary o period Apr-Se Plant VCM - Stack attached to	sions of SO ₂ , NO hly monitored thr why below indicand ndards. f the emission re pt' 16 as provided Parameter PM (mg/Nm3) SO2 (mg/Nm3) HCI (mg/Nm3) HCI (mg/Nm3) HC (mg/Nm3) CI2 (mg/Nm3) CO (mg/Nm3)	Dx, HC, Cl ₂ rough MoEl te the con esults from by PP is p GPCBCon sent Limit 150 40 25 20 9 15 150	2 and F F approforman proces resente 12.4 12.7 21.0 11.7 1.3 1.6 0.6	ICI from oved ag ce to th ss stac ed belov Min 2 11 1 <td< td=""><td>n proce ency a ne GP(ks for 1 N. Max 14 6 14.5 4 22.7 3 19.4 2 1.4 1 1.7 9 0.7</td></td<>	n proce ency a ne GP(ks for 1 N. Max 14 6 14.5 4 22.7 3 19.4 2 1.4 1 1.7 9 0.7
	Gandhar Petrochemical Complex vide Ministry letter No. J11011/482/2006IA.II(i) dated June 11, 2007 The gaseous emissions (SO ₂ , NOx, CO, NMHC, Cl ₂ and HCl) from the various process units should conform to the standards prescribed under Environment (Protection Rules, 1986 or norms stipulated by the SPCB whichever is more	Gaseous emis units are mont its results sho prescribed sta A summary o period Apr-Se Plant VCM - Stack attached to Incinerator	sions of SO ₂ , NG hly monitored thr why below indicand ndards. f the emission re pt' 16 as provided Parameter PM (mg/Nm3) SO2 (mg/Nm3) NOx (mg/Nm3) HCI (mg/Nm3) CI2 (mg/Nm3) HC (mg/Nm3) CO (mg/Nm3)	Dx, HC, Cl ough MoEl te the con esults from by PP is p GPCBCon sent Limit 150 40 25 20 9 15 150 6.6	2 and H F appro forman proces resente 12.4 12.7 21.0 11.7 1.3 1.6 0.6 NE	ICI from oved ag ce to the ss stack ed below Min 2 11 1 10.4 8 19.4 5 2.4 3 1.3 9 1.6 7 0.5 0 NE	n proce ency a ne GPC ks for 1 N. 14 6 14.9 4 22.7 3 19.4 2 1.4 1 1.7 9 0.7 0 NE
	Gandhar Petrochemical Complex vide Ministry letter No. J11011/482/2006IA.II(i) dated June 11, 2007 The gaseous emissions (SO ₂ , NOx, CO, NMHC, Cl ₂ and HCl) from the various process units should conform to the standards prescribed under Environment (Protection Rules, 1986 or norms stipulated by the SPCB whichever is more	Gaseous emis units are mont its results sho prescribed sta A summary o period Apr-Se Plant VCM - Stack attached to Incinerator	sions of SO ₂ , NO hly monitored thr why below indicand ndards. f the emission re pt' 16 as provided Parameter PM (mg/Nm3) SO2 (mg/Nm3) HCI (mg/Nm3) HCI (mg/Nm3) HC (mg/Nm3) CI2 (mg/Nm3) CO (mg/Nm3)	Dx, HC, Cl ₂ rough MoEl te the con esults from by PP is p GPCBCon sent Limit 150 40 25 20 9 15 150	2 and F F approforman proces resente 12.4 12.7 21.0 11.7 1.3 1.6 0.6	ICI from oved ag cc to tl sss stac ad below Min 2 11 1 2 11 1 2 1 3 1 3 1.6 7 0 0	n proce ency a ne GP(ks for 1 N. 14 6 14.9 4 22.7 3 19.4 2 1.4 1 1.7 9 0.7 0 NE
	Gandhar Petrochemical Complex vide Ministry letter No. J11011/482/2006IA.II(i) dated June 11, 2007 The gaseous emissions (SO ₂ , NOx, CO, NMHC, Cl ₂ and HCl) from the various process units should conform to the standards prescribed under Environment (Protection Rules, 1986 or norms stipulated by the SPCB whichever is more	Gaseous emis units are mont its results sho prescribed sta A summary o period Apr-Se Plant VCM - Stack attached to Incinerator Chlor Alkali Plant - Stacks Attached to Hypo and HCI synthesis Unit	sions of SO ₂ , NG hly monitored thr wm below indicand ndards. f the emission re pt' 16 as provided Parameter PM (mg/Nm3) SO2 (mg/Nm3) HCI (mg/Nm3) HCI (mg/Nm3) CI2 (mg/Nm3) CI2 (mg/Nm3) CI2 (mg/Nm3) CI2 (mg/Nm3) HCI (mg/Nm3)	Dx, HC, Cl ough MoEl te the con esults from by PP is p GPCBCon sent Limit 150 40 25 20 9 15 150 6.6 9	and F F appro forman proce: resente 12.4 12.7 21.0 11.7 1.3 1.6 0.6 NE 14.	ICI from oved ag cc to tl ss stac ed below Min 2 11 10.4 8 19.4 5 2.413 1.33 9 1.6 7 0.5 0 18 7.2	n proce ency a ne GPC ks for 1 N. Max 14 6 14.9 4 22.7 3 19.4 2 1.4 1 1.7 9 0.7 0 NI 0 NI 9 18.
	Gandhar Petrochemical Complex vide Ministry letter No. J11011/482/2006IA.II(i) dated June 11, 2007 The gaseous emissions (SO ₂ , NOx, CO, NMHC, Cl ₂ and HCl) from the various process units should conform to the standards prescribed under Environment (Protection Rules, 1986 or norms stipulated by the SPCB whichever is more	Gaseous emis units are mont its results sho prescribed sta A summary o period Apr-Se Plant VCM - Stack attached to Incinerator Chlor Alkali Plant - Stacks Attached to Hypo and HCI synthesis Unit	sions of SO ₂ , NC hly monitored thr wh below indicand ndards. f the emission re pt' 16 as provided Parameter PM (mg/Nm3) SO2 (mg/Nm3) HCI (mg/Nm3) HCI (mg/Nm3) CI2 (mg/Nm3) CI2 (mg/Nm3) CI2 (mg/Nm3) CI2 (mg/Nm3) HCI (mg/Nm3) PM (mg/Nm3)	Dx, HC, Cl ough MoEl te the con esults from by PP is p GPCBCon sent Limit 150 40 25 20 9 15 150 6.6 9 20	2 and F F approforman process resented 12.4 12.7 21.0 11.7 1.3 1.6 0.6 NE 14. 12.	ICI from oved ag cce to th sss stac ed belov Min 2 1 1 1 1 2 11 1 1 2 1 <	n proce ency a ne GPC ks for 1 N. Max 14 6 14.9 4 22.7 3 19.4 2 1.4 1 1.7 9 0.7 0 NE 0 NE 0 NE 0 14.
	Gandhar Petrochemical Complex vide Ministry letter No. J11011/482/2006IA.II(i) dated June 11, 2007 The gaseous emissions (SO ₂ , NOx, CO, NMHC, Cl ₂ and HCl) from the various process units should conform to the standards prescribed under Environment (Protection Rules, 1986 or norms stipulated by the SPCB whichever is more	Gaseous emis units are mont its results sho prescribed sta A summary o period Apr-Se Plant VCM - Stack attached to Incinerator Chlor Alkali Plant - Stacks Attached to Hypo and HCI synthesis Unit	sions of SO ₂ , NG hly monitored thr wh below indicand ards. f the emission re pt' 16 as provided Parameter PM (mg/Nm3) SO2 (mg/Nm3) HCI (mg/Nm3) HCI (mg/Nm3) CI2 (mg/Nm3) CI2 (mg/Nm3) CI2 (mg/Nm3) CI2 (mg/Nm3) HCI (mg/Nm3) HCI (mg/Nm3) HCI (mg/Nm3) SO2 (ppm)	Dx, HC, Cl ₂ rough MoEl te the con esults from by PP is p GPCBCon sent Limit 150 40 25 20 9 15 150 6.6 9 20 20 15 150	and F F appro forman proce: resente 12.4 12.7 21.0 11.7 1.3 1.6 0.6 NE 14.	ICI from oved ag cc to tl sss stac ad below Min 2 11 1 2 11 1 2 1 3 1.33 9 1.6 7 0 NE 0 18 7.2 50 10. 11	n proce ency and ne GPC ks for t N. 144 6 14.9 4 22.7 3 19.4 2 1.4 1 1.7 9 0.7 0 NE 0 NE 0 NE 0 NE 0 14.1 57 6.1
	Ministry for the CAPEX project a Gandhar Petrochemical Complex vide Ministry letter No J11011/482/2006IA.II(i) dated Jun- 11, 2007 The gaseous emissions (SO ₂ , NO) CO, NMHC, Cl ₂ and HCl) from th various process units shoul conform to the standards prescribe under Environment (Protection Rules, 1986 or norms stipulated b the SPCB whichever is more	Gaseous emis units are mont its results sho prescribed sta A summary o period Apr-Se Plant VCM - Stack attached to Incinerator Chlor Alkali Plant - Stacks Attached to Hypo and HCI synthesis Unit PVC Plant- Stacks attached	sions of SO ₂ , NO hly monitored thr why below indicand ards. f the emission re pt' 16 as provided Parameter PM (mg/Nm3) SO2 (mg/Nm3) HCI (mg/Nm3) CI2 (mg/Nm3) HCI (mg/Nm3) CI2 (mg/Nm3)	Dx, HC, Clarough MoEl rough MoEl te the con esults from by PP is p GPCBConsent Limit 150 40 25 20 9 15 150 6.6 9 20 150 150 150 150 150 150 150 150 150 150 150	2 and F F appro forman procesente Avg 12.4 12.7 21.0 11.7 21.0 11.7 1.3 1.6 0.6 NE 14. 14.	ICI from oved ag ce to tl ss stac ed below Min 2 11 1 2 11 1 2 3 1.33 9 1.6 7 0.5 0 18 7.2 50 10. 11 4.5	n proce ency a ne GP(ks for N. 14 6 14.5 4 22.7 3 19.4 2 1.4 1 1.7 9 0.7 0 NI 9 18. 00 14. 57 6. 67 13

	-	Stacks attached to Off gas	SO2 (mg/Nm3)	40				1
		scrubber, atmospheric scrubber and vent scrubber	NOx (mg/Nm3)	25	ND	ND	ND	
iv			can be seen from the abo onforming to the stand letails of the above results can h		Dulateu	NY		is B.
		Complied.	during Apr-Se	pt'16, emi	ssion lev	vels h	ave r	10
2	At no time the emission level shall go beyond the stipulated standards.	exceeded the p	prescribed stanc	lards.				
		Complied.				tod thr	ough	the
iv	In the event of failure of Pollution control system(s) adopted by the unit, the respective unit should not be restarted until the control measures are rectified to achieve the desired efficiency.	DCS system. I trigger/alarm is from restarting	ol systems in the In the event of s raised in the D and pollution co riod of Apr'16 to nent has happer	CS system ontrol system Sep'16, no	which pro m is rectif	events ied imr	the planediat	ar
		Complied.			1.13	2.0		
V	Ambient air quality monitoring stations (SPM, SO2, NOx and NMHC) shall be set up in the petrochemical complex in consultation with SPCB, based on	within the petr the maximum A summary c	established 7 ar rochemical com Ground Level C of the AAQ mc	oncentratio	on in dowr	nwind d	lirectio	n.
	occurrence of maximum ground level concentration and down wind direction of wind.	Parameter	P is given below GPCB Consent	Average	Min	Ma	x	
		PM ₁₀	Limit 100 µg/m ³	72.32	60	85		
		PM2.5	60 µg/m ³	36.71	27	52.		
		SO2	80 µg/m ³	5.70	2.1	9.3		
		NOX	80 µg/m ³	9.90	6.2	14.		_
		O ₃	180 µg/m ³	10.51	7.3	15.		-
		NH3	400 µg/m ³	19.35	14	28.		-
		CO	4 mg/m^3	1,14	0.92	1.3		-
		Benzene	5 µg/m ³	<1.0	<1.0	<1	.0	-
		Bonative					· · · · · · · · · · · · · · · · · · ·	mi
	The monitoring network must be decided based on modelling	It can be see to the standa Detailed AAG Complied. e AAQ monitor modeling car	en from the abov rds prescribed b 2 Monitoring dat ring network is ried out by NEE	a has been	separate	ly the ma	athema	ati
	decided based on modelling exercise to represent short term GLCs	It can be see to the standa Detailed AAG <u>Complied.</u> e AAQ monitor modeling car Complied.	rds prescribed b Q Monitoring dat ring network is rried out by NEE	by GPCB. a has been decided bi RI for short	separate ased on t t term max	ly the ma ximum	athema GLCs	ati
	decided based on modelling exercise to represent short term	It can be see to the standa Detailed AAG <u>Complied.</u> e AAQ monitor modeling car Complied. g Continuous of for monitorin Complied.	rds prescribed b 2 Monitoring dat	by GPCB. a has been decided bi RI for short nitoring ana Ox in all sta	separate ased on t t term ma: alysers ha cks.	ly the ma ximum ve bee	athema GLCs en prov	ati

	1	VOCs at the process areas are also reportedly being monitored in every plant under the Leak detection and Repair Program (LDAR).
ALC: NO		Complied.
	The CPCB shall independently monitor the air quality of the project.	This condition is not applicable to PP
	Fugitive emissions of HC from product storage tank yards etc. must be regularly monitored.	Fugitive emissions of HC from product storage tanks are monitored on weekly basis by LEL meters and on monthly basis by PID meters under the Leak Detection and Repair Program.
	Sensors for detecting HC leakage shall also be provided at strategic locations.	Complied. 370 LEL detectors for monitoring HC leakages have been installed at strategic locations like near the pumps, compressors, storage tanks yards, etc.
		Complied.
	The company shall use low sulphur fuel to minimize SO2 Emission.	The Low Sulfur fuels are used in the plant to minimize SO2 emissions. NG is usage maximized in the plant having sulphur content <1 ppm
		Complied.
vi	The company shall install online O2 monitor in the furnaces	20 online O2 monitors are installed in the furnaces to keep the track of combustion efficiency.
		Complied.
	Boilers shall be operated with minimum excess air for optimal fuel consumption and to minimize NOx emission.	Boilers are operated at minimum excess air and the online O2 monitors in furnaces are used for optimization of the air/fuel ratio for minimizing excess air, thereby NOx generation is minimized Complied.
	Fire stack burners and steam injection system shall be designed for smokeless operation to minimize NOx emission.	Steam injection system is provided in flare stacks for reducing NOx generation and have smokeless operation.
vii	For Control of fugitive emission, the company shall provide for a main flare system and an auxiliary flare system and route all unsaturated hydrocarbons to the flare system.	All plant vents containing unsaturated hydrocarbons are routed to the main flare and auxiliary flare (LP flare) system for controlling of fugitive emissions. An auxiliary flare system (LP flare) is provided for routing the discharge from the dump valve on cryogenic tanks.Whereas the main flare system is provided for all process units and non- cryogenic storage area
		Complied.
	All the pump and other equipment's where there is like hood of HC leakage shall be provided with LEL indicators	370 LEL detectors for monitoring HC leakages have been installed at strategic locations like main pumps, compressors, storage tanks yards, etc.
		Complied.
	also provide for immediate isolation to such equipment, in case of a leakage,	Isolation of leaking equipment is immediately done based on the LEL detector alarm.
		Complied. *
	The company shall adopt leak detection and repair (LDAR) programme for quantification and control of fugitive emissions.	LDAR program has been implemented in all plants for quantification and control of fugitive emissions. LDAR is carried out in each plant on quarterly basis. During the review period (Apr'16-Sep'16) the same were carried out at all the plants. Complied.
vili	The product-loading gantry shall be	The product loading gantry is connected with the respective
vili	connected to the product sphere in closed circuit through the vapour arm connected to the tanker.	product tanks with vapor arm connected to the tanker. The vapors are recovered through vapor recovery system which consists of RARFS scrubber, membrane unit & activated carbon filters and then recovered material is sent back to the tank. This system is

	/	installed at Produc Complied.					
1			1				DAI
	Data on fugitive emissions shall be regularly monitored and records	Fugitive emission program and reco	s are being reg rds maintained.	jularly mor	nitored th	rougn L	_DAi
	maintained.	Complied.	*				
	thell opsigne that no	No halogenated	organics are se	nt to flares	s. It is al	lways se	ent f
ix u	The company shall ensure that no halogenated organic is sent to the flares	incinerator unit.	1				
		Complied. Halogenated org	I Itam VC	n nlant a	re incin	erated i	in th
NO.	If any of the halogenated organic are present then the respective streams may be incinerated, if there are no technically feasible or economically	incinerator provid economically feas	ided at the pla sible.	In as ico	Jovery 10		
	viable reduction/recovery options. Any stream containing organic		ns containing	organic ca	arbon i.e	unsat	urat
	Any stream containing organic carbon, other than halogenated shall- be connected to proper flaring system, if not to a recovery device or	hydrocarbons, an compounds are r	re connected to not sent to flare.	Ine existin	ng narca	. 1 1010 9	
	an incinerator.	Complied. The process ve	antel of various	plants a	re mont	hly mo	nitor
	The company shall conform to the process vent standards for organic chemical including non- VOCs and all possible VOCs i.e. TOCs standard and process vent standards for top priority	through MoEF indicate the conf	annioved agend	prescribed	standard	eporting	
	chemicals.	Plant	Parameter	GPCB Consent Limit	Avg	Min	Ma
			PM (mg/Nm3)	150	12.42	11	1
a second s					12.71	10.46	14.
			SO2 (mg/Nm3)	40			
			(mg/Nm3) NOx	40 25	21.08	19.44	-
		VCM - Stack	(mg/Nm3)			19.44 2.43	22. 19
		VCM - Stack attached to Incinerator	(mg/Nm3) NOx (mg/Nm3)	25	21.08 11.75 1.38	2.43 1.32	19
		attached to	(mg/Nm3) NOx (mg/Nm3) HCI (mg/Nm3)	25 20	21.08 11.75	2.43 1.32 1.61	19 1. 1.
x		attached to	(mg/Nm3) NOx (mg/Nm3) HCI (mg/Nm3) CI2 (mg/Nm3)	25 20 9	21.08 11.75 1.38	2.43 1.32	19 1. 1. 0.
×		attached to	(mg/Nm3) NOx (mg/Nm3) HCl (mg/Nm3) Cl2 (mg/Nm3) HC (mg/Nm3)	25 20 9 15 150	21.08 11.75 1.38 1.69	2.43 1.32 1.61 0.59 ND	19 1. 1. 0.
x		attached to Incinerator Chlor Alkali	(mg/Nm3) NOx (mg/Nm3) HCl (mg/Nm3) Cl2 (mg/Nm3) HC (mg/Nm3) CO (mg/Nm3)	25 20 9 15 150	21.08 11.75 1.38 1.69 0.67	2.43 1,32 1.61 0.59	19 1. 1. 0
x		Attached to Incinerator Chlor Alkali Plant - Stacks Attached to Hypo and HCl	(mg/Nm3) NOx (mg/Nm3) HCl (mg/Nm3) Cl2 (mg/Nm3) HC (mg/Nm3) CO (mg/Nm3) VCM(mg/Nm3)	25 20 9 15 150 6.6	21.08 11.75 1.38 1.69 0.67 ND	2.43 1.32 1.61 0.59 ND	19 1. 1. 0. N
×		attached to Incinerator Chlor Alkali Plant - Stacks Attached to	(mg/Nm3) NOx (mg/Nm3) HCI (mg/Nm3) CI2 (mg/Nm3) HC (mg/Nm3) CO (mg/Nm3) VCM(mg/Nm3) CI2 (mg/Nm3)	25 20 9 15 150 6.6 9	21.08 11.75 1.38 1.69 0.67 ND ND	2.43 1.32 1.61 0.59 ND ŇD	19 1. 1. 0.
x		Attached to Incinerator Chlor Alkali Plant - Stacks Attached to Hypo and HCI synthesis Unit PVC Plant- Stacks	(mg/Nm3) NOx (mg/Nm3) HCI (mg/Nm3) CI2 (mg/Nm3) HC (mg/Nm3) VCM(mg/Nm3) CI2 (mg/Nm3) HCI (mg/Nm3)	25 20 9 15 150 6.6 9 20	21.08 11.75 1.38 1.69 0.67 ND ND 14.18	2.43 1.32 1.61 0.59 ND ŇD 7.29	19 1. 1. 1. 0. N N N 18
×		Attached to Incinerator Chlor Alkali Plant - Stacks Attached to Hypo and HCI synthesis Unit PVC Plant-	(mg/Nm3) NOx (mg/Nm3) HCl (mg/Nm3) Cl2 (mg/Nm3) HC (mg/Nm3) CO (mg/Nm3) VCM(mg/Nm3) Cl2 (mg/Nm3) HCl (mg/Nm3) PM (mg/Nm3)	25 20 9 15 150 6.6 9 20 150	21.08 11.75 1.38 1.69 0.67 ND ND 14.18 12.50	2.43 1.32 1.61 0.59 ND ND 7.29 10.00	19 1. 1. 1. 1. 0. N N N N N N N N N N N 18 14 14 14 11 14 14 14 14 14 14 14 14 14
×		attached to Incinerator Chlor Alkali Plant - Stacks Attached to Hypo and HCI synthesis Unit PVC Plant- Stacks attached to PVC Dryers PTA Plant -	(mg/Nm3) NOx (mg/Nm3) HCI (mg/Nm3) CI2 (mg/Nm3) HC (mg/Nm3) CO (mg/Nm3) VCM(mg/Nm3) CI2 (mg/Nm3) HCI (mg/Nm3) PM (mg/Nm3) SO2 (ppm)	25 20 9 15 150 6.6 9 20 150 100 50	21.08 11.75 1.38 1.69 0.67 ND ND 14.18 12.50 5.11	2.43 1.32 1.61 0.59 ND ND 7.29 10.00 4.57	19 1. 1. 0. N 18
×		attached to Incinerator Chlor Alkali Plant - Stacks Attached to Hypo and HCI synthesis Unit PVC Plant- Stacks attached to PVC Dryers	(mg/Nm3) NOx (mg/Nm3) HCI (mg/Nm3) HCI (mg/Nm3) CI2 (mg/Nm3) CO (mg/Nm3) VCM(mg/Nm3) CI2 (mg/Nm3) VCM(mg/Nm3) PM (mg/Nm3) SO2 (ppm) NOx (ppm) PM (mg/Nm3)	25 20 9 15 150 6.6 9 20 150 100 50	21.08 11.75 1.38 1.69 0.67 ND ND 14.18 12.50 5.11 11.57	2.43 1.32 1.61 0.59 ND ND 7.29 10.00 4.57 10.67	199 1. 1 1 0 1 1 1 1 1 1 1 1 1 1 1

/	shall not exceed 16,100 m3/d.	SEIAA/GUJ/EC/8 44,600 m3/d .	00 m3/day. Hov prescribed 5(e)&1(d)/124/2	vide vide 011 date	d 23 rd J	C une 2011	no. is
1		The current efflu review period of	ient generation Apr-Sep'16 as	quantity fi provided b	rom the co y PP is giv	omplex for ven below:	the
		Description	Permissible Limit	Avg	Min	Max	
		Effluent	44,600	22,594	18,041	25,630	
	-	generation From the above generation rate t below the permi- Complied.	from the comple ssible limit of 44	ex for the p 4,600 m ³ /d	enou Api-	000 1010 1	
	The wastewater generated shall be treated in comprehensive	Wastewater ger	omprehensive	emuent tre	amentia	cinty conoic	eing ting
	wastewater treatment plant.	of Primary, Secondary and Tertiary treatment units.					
		Complied.	The LASE	evstem	and Mer	mbrane ba	ased
	As reflected in the EIA/EMP report, the company shall maximize the recycling of treated effluent	Advanced Anaerobic UASB system and Membrane ba Aeration system i.e., Membrane Bioreactor(MBR), Ultrafiltra and Reverse Osmosis (RO) systems have been commissione the plant for achieving the maximum recycling of treated water					ed in
		The average	of enduence y	enerauon,	100yun	and -	5.5
		quantities duri below as agair accorded vide 23 rd June 2011	ng reporting p nst the Permiss letter no SEIA/	sible limits A/GUJ/EC/	prescribe 5(e)&1(d)/	d under the 124/2011 c	EC
		quantities duri below as agair accorded vide 23 rd June 2011 Descri	ng reporting p nst the Permiss letter no SEIA/ iption	beriod of sible limits A/GUJ/EC/ Permissible (KLD)	prescribe 5(e)&1(d)/	d under the 124/2011 c Average (KLD)	EC
		quantities duri below as again accorded vide 23 rd June 2011 Descri Quantity of Efflu	ng reporting p nst the Permiss letter no SEIA/ iption	beriod of sible limits A/GUJ/EC/ Permissible (KLD) 44,600	Apr-Sep 1 prescribe 5(e)&1(d)/ Limit	d under the 124/2011 c Average (KLD) 36,497	EC
		quantities duri below as again accorded vide 23 rd June 2011 Descri Quantity of Efflu Quantity of Efflu	ng reporting p nst the Permiss letter no SEIAA iption uent Generation uent Recycle	period of sible limits A/GUJ/EC/ Permissible (KLD) 44,600 14,080	Limit	Average (KLD) 36,497 13,879	EC
		quantities durin below as again accorded vide 23 rd June 2011 Descri Quantity of Efflu Quantity of Efflu Quantity of Efflu	ing reporting p nst the Permiss letter no SEIA/ iption uent Generation uent Recycle uent Discharge	period of sible limits A/GUJ/EC/ Permissible (KLD) 44,600 14,080 30,520	Limit	Average (KLD) 36,497 13,879 22,618	EC
		quantities duri below as again accorded vide 23 rd June 2011 Descri Quantity of Efflu Quantity of Efflu	ing reporting p nst the Permiss letter no SEIA/ iption uent Generation uent Recycle uent Discharge	period of sible limits A/GUJ/EC/ Permissible (KLD) 44,600 14,080	Limit	Average (KLD) 36,497 13,879	e EC
		quantities duri below as again accorded vide 23 rd June 2011 Descri Quantity of Efflu Quantity of Efflu Quantity of Efflu Percentage of R	ing reporting p nst the Permiss letter no SEIA/ iption uent Generation uent Recycle uent Discharge	Permissible (KLD) 44,600 14,080 30,520 32% e table that	Api-Sep 1 prescribe 5(e)&1(d)/	Average (KLD) 36,497 13,879 22,618 38%	a EC lated
		quantities duri below as again accorded vide 23 rd June 2011 Descri Quantity of Efflu Quantity of Efflu Quantity of Efflu Percentage of R It can be seen effluent is max	Ing reporting points the Permiss letter no SEIA/ intion uent Generation uent Recycle uent Discharge Recycle from the above kimized against	e table timits A/GUJ/EC/ Permissible (KLD) 44,600 14,080 30,520 32%	Api-Sep 1 prescribe 5(e)&1(d)/	aunder the 124/2011 c Average (KLD) 36,497 13,879 22,618 38% ity of treated	a EC lated
	and treated effluent after conforming to the prescribed standards shall be discharged through the existing marine disposal system.	quantities duri below as again accorded vide 23 rd June 2011 Descri Quantity of Efflu Quantity of Efflu Quantity of Efflu Quantity of Efflu Percentage of R It can be seen effluent is max Complied. Treated effluen MoEF approve well within the discharged thr to the standard	Ing reporting presenting present the Permiss letter no SEIA/ Internation under the second sec	e table that the limit A/GUJ/EC/ Permissible (KLD) 44,600 14,080 30,520 32% e table that the limit	Api-Sep T prescribe 5(e)&1(d)/ Limit the quanti the quanti of effluent loEF and t system af	Average (KLD) 36,497 13,879 22,618 38% ity of treated is through is maintain the same is fter conform	d d d
	to the prescribed standards shall be discharged through the existing	quantities duri below as again accorded vide 23 rd June 2011 Descri Quantity of Efflu Quantity of Efflu Quantity of Efflu Quantity of Efflu Percentage of R It can be seen effluent is max Complied. Treated effluen MoEF approve well within the discharged thr to the standard The summary Sept' 16 is giv	Ing reporting presenting presenti	eriod of sible limits A/GUJ/EC/ Permissible (KLD) 44,600 14,080 30,520 32% e table that the limit itored on m the quality ed by the M re disposal ent quality no. 1.	Api-Sep T prescribe 5(e)&1(d)/ Limit the quanti the quanti of effluent loEF and t system af monitoring	Average (KLD) 36,497 13,879 22,618 38% ity of treated sis through the same is fter conform g reports for	d ned
	to the prescribed standards shall be discharged through the existing	quantities duri below as again accorded vide 23 rd June 2011 Descri Quantity of Efflu Quantity of Efflu Quantity of Efflu Quantity of Efflu Percentage of R It can be seen effluent is max Complied. Treated effluen MoEF approve well within the discharged thr to the standard The summary Sept' 16 is giv Detailed treate separately.	Ing reporting presenting present the Permiss letter no SEIA/ Internation under Generation under Generation under Recycle from the above cimized against against in tis being moned agency and the norm prescribe rough the marin ds.	eriod of sible limits A/GUJ/EC/ Permissible (KLD) 44,600 14,080 30,520 32% e table that the limit itored on m the quality ed by the M re disposal ent quality no. 1.	Api-Sep T prescribe 5(e)&1(d)/ Limit the quanti the quanti of effluent loEF and t system af monitoring	Average (KLD) 36,497 13,879 22,618 38% ity of treated sis through the same is fter conform g reports for	d ned
	to the prescribed standards shall be discharged through the existing	quantities duri below as again accorded vide 23 rd June 2011 Quantity of Efflu Quantity of Efflu Quantity of Efflu Quantity of Efflu Percentage of R It can be seen effluent is max Complied. Treated effluen MoEF approve well within the discharged thr to the standard The summary Sept' 16 is giv Detailed treate separately.	Ing reporting presenting presenti	erriod of sible limits A/GUJ/EC/ Permissible (KLD) 44,600 14,080 30,520 32% e table that the limit itored on m the quality ed by the N the disposal ent quality no. 1. itoring repo	Api-Sep T prescribe 5(e)&1(d)/ Limit the quanti the quanti nonthly ba of effluent loEF and t system af monitoring	Average (KLD) 36,497 13,879 22,618 38% ity of treater sis through is maintain the same is fter conform g reports for	d d

		survival of fish after 96 hours review period of Apr'16 –Sep test is provided in the above	o'16, The analysis re	achieved for esults of Bioas	ine isay				
	and the second	Complied.			_				
	The domestic effluent after treatment and conforming to the prescribed standards shall be used for green belt development.	The domestic effluent genera biological section of the efflu approval from GPCB and it of As mentioned above, about being reused as CW make u belt development.	ent treatment plant conforms to the pres 14,000 KLD of treat p, DM water produc	with the prior scribed standa ed effluent is stion and for g	rds.				
		The average of effluent gene quantities during reporting p below as against the Permis EC accorded vide letter no S dated 23 rd June 2011	eriod of Apr-Sep'16 sible limits prescribe	is presented ed under the la	atest 1				
-		Description	Permissible Limit (KLD)	Average (KLD)					
		Quantity of Effluent Generation	44,600	36,497					
		Quantity of Effluent Recycle	14,080	13,879					
		Quantity of Effluent Discharge	30,520	22,618					
		Percentage of Recycle	32%	38%					
		Complied.							
	approval from the state Irrigation Department to meet the additional water requirement. M/s RIL shall undertake rainwater	River has been obtained from Copy of water drawl appro MGD has been provided sep Complied.	val from Irrigation barately.	Department f	or 2				
xiv	M/s RIL shall undertake rainwater harvesting measures, to recharge the ground water and also to minimize the water drawl from the weir.	storing the rain water. The of to supplement fresh water s drawl from the weir to that e ground water.	collected water is us supply thereby hence	sed inside the e minimizing	plar wate				
xv	Green belt shall be raised in an area		und 70 ha of Green	Complied. The site has developed around 70 ha of Green cover within Dahe					
~ V	of 43 ha to mitigate the fugitive	Petrochemical Complex to n							
	emissions from the plant.			emissions.	bee				
		During review period of Applanted in the complex.		emissions.	bee				
	emissions from the plant.	During review period of Applanted in the complex.	or-Sep'16: 7,790no:	emissions. s trees have					
		During review period of Applanted in the complex.	Dr-Sep'16: 7,790no: Dected for the green CB. Few of the plant quisetifolia (Suru), (Karanj), Cassia	emissions. s trees have n belt develop t species exist Azadirachtai siamea (Ka	omer ing a indic shid				
	emissions from the plant. Selection of plant species shall be as per the central pollution control	During review period of Applanted in the complex. Complied. Native plant species are set as per the guidelines of CPC the site are: Casuarinaet (Neem), Millettiapinnata Albiziaprocera (Shirish Peltophorumpterocarpum et Complied.	br-Sep'16: 7,790no: lected for the green CB. Few of the plant quisetifolia (Suru), (Karanj), Cassia I), Delonixregia c.	emissions. s trees have n belt develop t species exist Azadirachtai siamea (Ka a (Gulmo	omer ing a indic shid ohar				
xvi	emissions from the plant. Selection of plant species shall be as per the central pollution control	During review period of Applanted in the complex. Complied. Native plant species are set as per the guidelines of CPC the site are: Casuarinaet (Neem), Millettiapinnata Albiziaprocera (Shirish Peltophorumpterocarpum et	or-Sep'16: 7,790no: lected for the gree CB. Few of the plant quisetifolia (Suru), (Karanj), Cassia I), Delonixregia c.	emissions. s trees have n belt develop t species exist Azadirachtai siamea (Ka a (Gulmo is being done	omer ing a indic shid ohar on a				

	onalidons j					
	Meliant authorities must strictly Melianto the stipulations made by Marat State Pollution Control and the state Government	Complied and submitted in o	compliance i	report of E	C 1991.	
	e Fugher expansion or modernization in the plant should b carried out without prior approval of the Ministry of Environment and Porests		ith prior appr our existing he EC in 19	oval of Mo petrochemi	EF. This I ical comp	
	At as time, the omissions should	Complied.			_	
	At no time, the emissions should go beyond the prescribed standards.	At no time, emissions have during the reporting period of A Complied.	exceeded the pr-Sep'16.	e stipulate	d standar	
	In the event of failure of any pollutio control system adopted by the units the respective unit should be immediately put out of operation and should not be restarted unit the desired efficiency has been achieve	n Pollution control systems in th DCS system. In the event of find trigger/alarm is raised in the DC from restarting.	ailure of pollu CS system w 6. no such fai	ution contro hich prever	ol system, hts the pla	
		Complied.				
iv	The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA)	Noise level at the site is monitor MoEF approved agency and it is prescribed occupational noise le	s observed to	be well wi	ough thin the	
		The summary of Workplace Noi Apr-Sept' 16 as provided by PP	se Level mor is presented	nitoring repo below.	orts for	
		Plants	Workplace Noise Levels			
		Fiants	Average	Min	Max	
		Chlor Alkali Plant	61.88	57.20	67.90	
			000	01.20	01.00	
		VCM Plant	58.78	53.50	61.60	
		VCM Plant	58.78	53.50	61.60	
		VCM Plant PVC Plant	58.78 62.55	53.50 51.20	61.60 73.30	
		VCM Plant PVC Plant EO-EG Plant	58.78 62.55 59.90	53.50 51.20 54.90	61.60 73.30 67.00	
		VCM Plant PVC Plant EO-EG Plant GCU Plant	58.78 62.55 59.90 66.39	53.50 51.20 54.90 56.50	61.60 73.30 67.00 70.30	
		VCM Plant PVC Plant EO-EG Plant GCU Plant EPRU	58.78 62.55 59.90 66.39 60.64	53.50 51.20 54.90 56.50 58.20	61.60 73.30 67.00 70.30 63.60	
		VCM Plant PVC Plant EO-EG Plant GCU Plant EPRU OSBL	58.78 62.55 59.90 66.39 60.64 53.42	53.50 51.20 54.90 56.50 58.20 50.60	61.60 73.30 67,00 70.30 63.60 55.80	
		VCM Plant PVC Plant EO-EG Plant GCU Plant EPRU OSBL HDPE	58.78 62.55 59.90 66.39 60.64 53.42 62.51	53.50 51.20 54.90 56.50 58.20 50.60 50.20	61.60 73.30 67.00 70.30 63.60 55.80 69.50	
		VCM Plant PVC Plant EO-EG Plant GCU Plant EPRU OSBL HDPE CPP I	58.78 62.55 59.90 66.39 60.64 53.42 62.51 62.14	53.50 51.20 54.90 56.50 58.20 50.60 50.20 52.40	61.60 73.30 67,00 70.30 63.60 55.80 69.50 84.60	
		VCM Plant PVC Plant EO-EG Plant GCU Plant EPRU OSBL HDPE CPP I CPP II	58.78 62.55 59.90 66.39 60.64 53.42 62.51 62.14 65.89	53.50 51.20 54.90 56.50 58.20 50.60 52.40 55.60	61.60 73.30 67.00 70.30 63.60 55.80 69.50 84.60 74.40	
		VCM Plant PVC Plant EO-EG Plant GCU Plant EPRU OSBL HDPE CPP I CPP II CPP III	58.78 62.55 59.90 66.39 60.64 53.42 62.51 62.14 65.89 62.23	53.50 51.20 54.90 56.50 58.20 50.60 52.40 55.60 45.20	61.60 73.30 67.00 70.30 63.60 55.80 69.50 84.60 74.40 76.70	
		VCM Plant PVC Plant EO-EG Plant GCU Plant EPRU OSBL HDPE CPP I CPP II CPP III PTD (Tankfarm)	58.78 62.55 59.90 66.39 60.64 53.42 62.51 62.14 65.89 62.23 56.32	53.50 51.20 54.90 56.50 58.20 50.60 52.40 55.60 45.20 52.40	61.60 73.30 67.00 70.30 63.60 55.80 69.50 84.60 74.40 76.70 59.80	
		VCM Plant PVC Plant EO-EG Plant GCU Plant EPRU OSBL HDPE CPP I CPP II CPP III CPP III PTD (Tankfarm) PET-3	58.78 62.55 59.90 66.39 60.64 53.42 62.51 62.14 65.89 62.23 56.32 55.42	53.50 51.20 54.90 56.50 58.20 50.60 52.40 55.60 45.20 52.40 45.20 52.40 45.20	61.60 73.30 67.00 70.30 63.60 55.80 69.50 84.60 74.40 76.70 59.80 59.30	
		VCM Plant PVC Plant EO-EG Plant GCU Plant EPRU OSBL HDPE CPP I CPP II CPP III PTD (Tankfarm) PET-3 PTA-5	58.78 62.55 59.90 66.39 60.64 53.42 62.51 62.14 65.89 62.23 56.32 55.42 59.18	53.50 51.20 54.90 56.50 58.20 50.60 52.40 55.60 45.20 52.40 35.50	61.60 73.30 67.00 70.30 63.60 55.80 69.50 84.60 74.40 76.70 59.80 59.30 75.40	
		VCM Plant PVC Plant EO-EG Plant GCU Plant EPRU OSBL HDPE CPP I CPP II CPP III CPP III PTD (Tankfarm) PET-3 PTA-5 PTA-6	58.78 62.55 59.90 66.39 60.64 53.42 62.51 62.14 65.89 62.23 56.32 55.42 59.18 53.49	53.50 51.20 54.90 56.50 58.20 50.60 52.40 55.60 45.20 52.40 35.50 43.50 59.50	61.60 73.30 67.00 70.30 63.60 55.80 69.50 84.60 74.40 76.70 59.80 59.30 75.40 62.50 61.80	
		VCM Plant PVC Plant EO-EG Plant GCU Plant EPRU OSBL HDPE CPP I CPP II CPP III PTD (Tankfarm) PET-3 PTA-5 PTA-6 IOP - Air Separation Unit	58.78 62.55 59.90 66.39 60.64 53.42 62.51 62.14 65.89 62.23 56.32 55.42 59.18 53.49 61.07	53.50 51.20 54.90 56.50 58.20 50.60 52.40 55.60 45.20 52.40 35.50 43.50 59.50 56.10	61.60 73.30 67.00 70.30 63.60 55.80 69.50 84.60 74.40 76.70 59.80 59.30 75.40 62.50 61.80 58.20	
		VCM Plant PVC Plant EO-EG Plant GCU Plant EPRU OSBL HDPE CPP I CPP II CPP III PTD (Tankfarm) PET-3 PTA-5 PTA-6 IOP - Air Separation Unit IOP - Compressor House	58.78 62.55 59.90 66.39 60.64 53.42 62.51 62.14 65.89 62.23 56.32 55.42 59.18 53.49 61.07 57.00	53.50 51.20 54.90 56.50 58.20 50.60 52.40 55.60 45.20 52.40 35.50 43.50 59.50	61.60 73.30 67.00 70.30 63.60 55.80 69.50 84.60 74.40 76.70 59.80 59.30 75.40 62.50 61.80	

F	4	Complied.						
^								
	By providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise.generation.	Provision of silencers, end noise generat	closures etc	rol me: c. has t	asures been m	including a ade for all	acoustic sources	c hood s of hi
-	The ambient noise levels should	Complied.	a levels co	nforme	to the	atondard a	de e suite a	al cost
	conform to the standards prescribed under EPA Rules, 1986 viz. 75 dBA (Day Times) and 70 dBA (Night time)	onform to the standards prescribed EPA Rules, 1986 viz. 75 dBA (Day Times) and 70 time).					70 dB.	A (Ni
		Monitoring	Da	y Time			ht Time	
		Location	Average	- 75dB/ Min	A) Max	(Limit Average	- 70dB. Min	A) Max
	× 1	Security Building	62.8	61.3	63.8	57.7	55.8	59.3
		Guest House	58.7	57.1	59.8	55.5	54.1	57.
		Pump House	63.3	62.4	64.4	59.8	58.1	61.8
		Main Fire Station	60.40	58.90	61.8	55.28	52.10	58.3
		ETP	59.6	58.1	62.1	54.7	51.8	56.8
		Jetty	52.2	50.4	53.2	49.9	- 48.1	50.9
		Jageshwar Village	52.8	52.1	53.9	49.3	47.6	50.4
V	The project authorities must strictly comply with the provisions made in Manufacture, Storage and Import of Hazardous Chemicals Rules 1989 as amended in 2000 for handling of hazardous chemicals etc.	regular prepara conduc provision annour	he Manufa SIHC) Rule Insuring the ation of sa ity) ation of eme ting mock of on emerg incement etc	cture, S s 1989 followin afety au ergency drills on ency and en	torage as am g activi udit rep respor regular alert isuring	and Import ended in 2 ties : port (subm use plan basis	of Haz 000 are itted to ke sir	e beir DIS ens
	Necessary approvals from Chief Control of Explosives must be provided before commission of the project.	The approvals r Explosives are commissioning Complied.	in place and	d they w	e of HC /ere obt	from Chief ained befor	Control e	of
	The project authorities must strictly comply with the rules and regulations with the Hazardous Wastes (Management and Handling) Rules, 2003.	Handling and D being done in ad Handling Rules Complied.	ccordance v	with the	Hazard	lous waste	(M&H)	

1	Storage/ disposal of hazardou: wastes.	ent/ s Authorization (W-76082) from GPCB for collection/treatment/ s storage/ disposal of hazardous wastes is available which is vali up to 03.11.2020.
		Quantity of Hazardous wastes collected, stored and dispo- during reporting period Apr-Sep'16 has been provided by separately.
		Copy of Form - 4 submitted to GPCB for the year 2015-2016 heen submitted separately.
vii	The project authorities will provi	Complied.
1	addid initias hoth requiring	de Adequate funds have have
	conditions stipulated by the Minis of Environment and Forests as w as the State Government along w the implementation schedule for the conditions stipulated herein.	stry vell with all
	The funds so provided should	
	diverted for any other purpose.	t be The funds provided for Environmental impravi
	pulpose.	t be The funds provided for Environmental improvement activities are used only for the said purpose. They are not diverted for other activities at site.
viii	771	Complied.
VIII	The stipulated conditions will be	
	Ministry at Bhopal/ Central Pollutio Control Board/ State Pollutio	This condition is not applicable to PP
	Control Board.	
	A six monthly compliant	
	A six monthly compliance report an the monitored data should be	d Six monthly compliance report and
	submitted to them regularly.	Ad Six monthly compliance report and monitoring data is submitted to MoEF regularly. Last Compliance report was submitted vide our letter no. GPC/HSE/E/476/0106 dated 31 st may 2016. Also Stacks, Ambient Air Quality Effluent, Noise monitoring report.
		hazardous reports are submitted to GPCB on monthly basis
x	The project proponent shall inform	Complied.
	The project proponent shall inform the public that the project has been	Complied.
a b c th C	accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board/ committee and may also be	Hazardous reports are submitted to GPCB on monthly basis. Complied. The public has been informed about the Environment Clearance accorded to this project through Newspaper in English and Gujarati language. The copy of the newspaper publication has been submitted to the MoEF along with the first compliance report of this EC.
a b c th C w Er htt	accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board/ committee and may also be seen at rebsite of the Ministry of nvironment and Forests at ttp://www.envfor pic in This clear	Hazardous reports are submitted to GPCB on monthly basis. Complied. The public has been informed about the Environment Clearance accorded to this project through Newspaper in English and Gujarati language. The copy of the newspaper publication has been submitted to the MoEF along with the first compliance report of this EC. It is gathered that the order to the submitted that the order to the submitted to the submitted that the order to the submitted that the submitted to the submitted that the order to the submitted to the submitted that the order to the submitted to the submitted that the order to the submitted to the submitted that the order to the submitted to the submitted to the submitted that the order to the submitted to the submitted to the submitted that the order to the submitted to the submitte
a b c th C w Er htti be for clear	Accorded environmental clearance accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board/ committee and may also be seen at rebsite of the Ministry of nvironment and Forests at tp://www.envfor.nic.in This should advertised within seven days rm the date of issue of the carance letter at least in two letters	Hazardous reports are submitted to GPCB on monthly basis. Complied. The public has been informed about the Environment Clearance accorded to this project through Newspaper in English and Gujarati language. The copy of the newspaper publication has been submitted to the MoEF along with the first compliance report of this EC.
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5	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory	This condition is not applicable to PP.
6	The Ministry reserves the right to stipulate additional conditions if found necessary.	This condition is not applicable to PP.
	The company in a time bound manner will implement these conditions	Company has implemented all the conditions prescribed by the Ministry in this EC. Complied.
7	The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air ((Prevention & Control of Pollution) Act 1981, The Environment (Protection) Act, 1986, Hazardous Wastes (Management And Handling) Rules 2003 and the Public Liability Insurance Act, 1991 along with their amendments and rules.	This condition is not applicable to PP but taken cognizance.

Summary and inference:

The compliance of EC conditions is good. Out of 27 conditions, 23 are found to have been complied, 3 are not applicable to the PP and one condition needs only taking note/ cognizance .

Court Cases and Show cause notices issued:

It has been reported that there is no court case on this project

Details of Notices issued during last three years.

Date	Details of Directions by CPCB/ Show Cause Notice (SCN) issued by GPCB, if any	Date	Reply from PA
Letter no. GPCB-HAZ , GEN- 503/316347 dated 04.06.2015	Show Cause Notice issued by GPCB regarding observation of no submission of monthly data of hazardous waste disposed / incinerated at our captive TSDF/Incinerator and foresaid details.	Letter No. RIL/HSE/E/47 4 dated 19.06.2015	Replied to notice with supporting evidences as we are regularly submitting the details as a part of GPCB Monthly Report in hard copy to GPCB Regional Office Bharuch and GPCB Gandhinagar and also are submitting the required details in GPCB XGN portal. Therefore it is resolved. The query was resolved and no further action has been initiated.
Letter no.: B-29016/ 04/06/PCI- I/44989 dtd. 24.07.2015 received on	Directions issued by CPCB under regarding installation of on-line effluent and emission monitoring systems	Letter No. RIL/HSE/E/47 4/2908/PC dated 29.08.2015	Replied to letter with following details 1. Documentary evidence regarding CAPEX raised for installation of online emission & effluent monitoring system. 2. Letter to CPCB through CPMA

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schedule tor completion of establishing online facilities and connecting to GPCB/CPCB server by December 2016.

Continuous Emissions Monitoring System is installed and commissioned in all stacks and at ETP outlet.

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Counter Agnee by: Andl. PCCP (C)

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भारत सरकार GOVERNMENT OF INDIA पर्यावरण एवं वन मंत्रालय MINISTRY OF ENVIRONMENT & FORESTS

SPEED POST

क्षेत्रीय कार्यालय, पश्चिम-क्षेत्र, Regional Office, Western Region, "केन्द्रीय पर्यावरण भवन" "Kendriya Paryavaran Bhavan" लिन्क रोड नं0-3/Link Road No. 3 E-5,रविशंकर नगर/Ravi Shankar Nagar. भोपाल (म0प्र0)/Bhopal-462016 (M.P.) फोन: 0755- 2465054, फैक्स: 0755& 2463102 अणुडाक /E-mail: rccfbhopal@gmail.com

दिनांक : 26.10.2016

कमांक: 18-A-92/2011(SEAC) / 38/

प्रति,

डॉ0 ललित बोकोलिया, वैज्ञानिक 'एफ', पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, इंदिरा पर्यावरण भवन, जोर बाग रोड, अलीगंज, नई दिल्ली - 110003

विषय: Expansion & Debottelnecking of Petrochemical Plant of Dahej Manufacturing Division (DMD) at Tehsil Vagra District Bahuruch Gujarat By M/s Reliance Industries Limited.

संदर्भ: No. SEIAA /GUJ/EC/5(e)&1(d)/124/2011 Dated : 23rd June 2011

महोदया,

मंत्रालय के उपरोक्त संदर्भित पत्रांकों के संदर्भ में उक्त परियोजनाओं को पर्यावरणीय दृष्टिकोण से अनुमति देते समय अनुबद्ध शर्तों के अनुपालन एंव certification of compliance के निर्देशाअनुसार, अनुवीक्षण प्रतिवेदन (मॉनिटरिंग रिपोर्ट) एतद् द्वारा संलग्न कर प्रेषित है ।

भवदीय

संलग्नः उपरोक्तानुसार

वैज्ञानिक 'एफ

प्रतिलिपि: 1. श्रीमति रीता खन्ना, निदेशक, (अनुवीक्षण सैल), पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय,इंदिरा पर्यावरण भवन, जोर बाग रोड, अलीगंज,नई दिल्ली - 110003 की ओर सूचनार्थ एंव आवश्यक कार्यवाही हेतु।

2. Shri Pavan K. Jain Site President, Reliance Industries Limited, Dahej Manufacturing Division, Dahej, P.O. Bharuch, District: Bharuch – 392130 Gujarat - 392130

9.

वैज्ञानिक 'एफ'

Monitoring the Implementation of Environmental Safe Guards Ministry of Environment & Forest Western Region, Regional Office, Bhopal MONITORING REPORT

PART-I

DATA SHEET

1	Project type: River Valley/Mining/Industry /	Industry (Petrochemical)
	Industry, Thermal/Nuclear/Other (Specify)	
2	Name of the Project	Setting up of EODs, Acrylic Acid & Esters, Phenol, PTA, PET, Polyester plants and 200 MW CCPP power plant in the existing petrochemical unit at Dahej Manufacturing Division.
3	Clearance letter (s) OM No. & date	No. SEIAA /GUJ/EC/5(e)&1(d)/124/2011 Dated : 23 rd June 2011 Amendments in EC : No. SEIAA /GUJ/EC/5(e)&1(d)/ 160/2011, dated : 9 th August 2011 No. SEIAA /GUJ/EC/ 7(e)/278/2011, Dated : 13 th September2012
4	Location Districts State Location-Latitude/Longitude	Dahej Bharuch Gujarat Latitude : 21 ⁰ 40'35''N & 21 ⁰ 41'27''N
5	Address for Correspondence	Longitude : 72°33'32"E & 72°35'04"N
(a)	Address of the concerned Project Chief Engineer (with Pin Code & telephone / telex / fax numbers Address of Executive Project Engineer / Manager (with Pin code / fax numbers)	Shri Pavan K. Jain Site President, Reliance Industries Limited, Dahej Manufacturing Division, Dahej, P.O. Bharuch, District: Bharuch - 392130 Gujarat - 392130 Ph : 02641- 615001 E-mail : pavan.jain@ril.com Shri Pavan K. Jain Site President, Reliance Industries Limited, Dahej Manufacturing Division, Dahej, P.O. Bharuch, District: Bharuch - 392130 Gujarat - 392130 Ph : 02641- 615001
		E-mail : pavan.jain@ril.com
6	Salient features	
(a)	Of the Project	Already submitted to the State Level Environment Impact Assessment Authority (SEIAA), Gujarat based on which the aforesaid EC has been obtained. PTA & PET plants have been established as per EC. PTA & PET are the largestplant in India. Other plants like EODs, Acrylic Acid & Esters, Phenol. Polyester plants and 200 MW CCPP power plant have not been established so far. Technology

(2)	Of the Environment Management Plan	RMD was propored based on the baseling date
(b)	Of the Environment Management Plan	EMP was prepared based on the baseline data collected by NEERI and impact prediction were
		done using mathematical models and
		superimposition of those impacts on the baseline.
		EMP includes provision of state of the art Effluent
		Treatment Plant and Air Pollution Control
		Equipment, Solid Waste Management and Green
		Belt development. Regular environment monitoring
		is also a part of EMP. Major points implemented as
		per EMP e.g.
		 Provided separate ETP for treatment of
		PTA/ PET effluent with advancé waste
		water treatment like UASB alongwith
		MBR, Ion exchange, UF & RO.
		• Strengthen the existing Greenbelt.
		 Recycling treated effluent in cooling tower,
		development.
		• Implemented LDAR program in PTA/PET
7	Produce of the project area	plants.
(a)	Breakup of the project area Submergence Area : Forest & Non Forest	Not applicable, No additional land is required as
(~)	· · · · · · · · · · · · · · · · · · ·	
(b)	Others	petrochemical complex.
(0)	Officia	The land requirement for the project was around 89
	,	ha which was accommodated within 700 ha of
8		existing petrochemical complex
0	Breakup of the project affected population	Not Applicable
	with enumeration of those losing houses /	
	dwelling units only agricultural land only,	
	both dwelling units and agricultural land	
	and landless labourers / artisans :	
	(a) SC, ST / Adivasi	
	(b) Others	
	(please indicate whether these figures are	
	based on any scientific and systematic	
	survey carried out or only provisional	· · · · · · · · · · · · · · · · · · ·
	figures, if a survey is carried out give details	
	& year of survey.	
9	Financial details	
(a)	Project cost as originally planned and	Cost of Project was Rs.16500crores in 2011
	subsequent revised estimates and the year of	Cost of Frojoet was RS.10000crofes in 2011
	price reference	
47. 1		Non manine (i.e. OADDIG) D. (00.0
(b) L		
		Non-recurring (i.e. CAPEX) Rs. 600 Crore
	management plan with item wise and year	
		(Estimated cost: New ETP with ASP, Anaerobic
	management plan with item wise and year	(Estimated cost: New ETP with ASP, Anaerobic UASB, MBR, RO with UF system & Drainage : Rs.
	management plan with item wise and year	(Estimated cost: New ETP with ASP, Anaerobic UASB, MBR, RO with UF system & Drainage : Rs. 400 Crore,
	management plan with item wise and year	(Estimated cost: New ETP with ASP, Anaerobic UASB, MBR, RO with UF system & Drainage : Rs. 400 Crore, APCE : Scrubbers removal of HC, HPCC for
	management plan with item wise and year	(Estimated cost: New ETP with ASP, Anaerobic UASB, MBR, RO with UF system & Drainage : Rs. 400 Crore,
	management plan with item wise and year	(Estimated cost: New ETP with ASP, Anaerobic UASB, MBR, RO with UF system & Drainage : Rs. 400 Crore, APCE : Scrubbers removal of HC, HPCC for removal of CO from off gases etc: Rs. 185 crore
	management plan with item wise and year	(Estimated cost: New ETP with ASP, Anaerobic UASB, MBR, RO with UF system & Drainage : Rs. 400 Crore, APCE : Scrubbers removal of HC, HPCC for removal of CO from off gases etc: Rs. 185 crore Solid Waste Mgt: Rs. 10 Crore and
	management plan with item wise and year	(Estimated cost: New ETP with ASP, Anaerobic UASB, MBR, RO with UF system & Drainage : Rs. 400 Crore, APCE : Scrubbers removal of HC, HPCC for removal of CO from off gases etc: Rs. 185 crore Solid Waste Mgt: Rs. 10 Crore and Green Belt Development - Rs. 5 crore)
	management plan with item wise and year	(Estimated cost: New ETP with ASP, Anaerobic UASB, MBR, RO with UF system & Drainage : Rs. 400 Crore, APCE : Scrubbers removal of HC, HPCC for removal of CO from off gases etc: Rs. 185 crore Solid Waste Mgt: Rs. 10 Crore and Green Belt Development - Rs. 5 crore)
	management plan with item wise and year	(Estimated cost: New ETP with ASP, Anaerobic UASB, MBR, RO with UF system & Drainage : Rs. 400 Crore, APCE : Scrubbers removal of HC, HPCC for removal of CO from off gases etc: Rs. 185 crore Solid Waste Mgt: Rs. 10 Crore and

		13/09/2016 Mail Received From PA 20/10/2016 Letter No. GPC/HSE/E/476/2010/4
Date		Date Reply from PA
	subsequently)	
	reports may cover only the letter issued	
	all the letters issued so far, but the later	
	monitoring report may contain the details of	
	safeguards other than the routine letters for logistic support for site visits. (The first	
	information on status of compliance to	
	authorities for obtaining act onplans/	
15	Details of correspondence with project	As mentioned below
	report	
	b) Date of the site visit for the monitoring	30.09.2016
	occasion (if any)	
	monitored by the RO on previous	
	a) Date on which the project was]
14	Dates of site visit	
13	Reason for delay (if project is yet to start)	Not Applicable
	b) Date of completion	
14.	a) Date of commencement	in November 2015
12	Status of construction (Actual &/or planned)	PET & PTA Plants are completed & commissione
	information required	
	approach road etc) if any with quantitative	
11	(such as submergence area of reservoir,	
<u>.</u>	of actual field experience so far The status of clear felling in non-forest areas	Not Applicable
•	sustainability of CA programme in the light	
	d) Comments on the viability and	
	c) The status of CA, if any	
•	b) The status of clearing/felling obtained.	
	forest land for non-forestry use	
	a) The status of approval for diversion of	
10	Forest land requirement	No requirement of Forest Land
		disposal, Env monitoring etc) - Rs.8 crore for FY 15-16 and Rs. 5 crore for FY 14-15
		Recurring / year (O&M of ETP, Green Belt, Wast
		$= \frac{1}{2} \left(\frac{1}{2} + \frac{1}{2} \right) \left(\frac{1}{2} + \frac{1}{$
		Green Belt Development - Rs 5 crore)
		Solid Waste Mgt: Rs. 10 Crores and
		removal of CO from off gases etc: Rs. 200 crore
		APCE : Scrubbers removal of HC, HPCC fo
		RO with UF system & Drainage : Rs. 400 Crore,
	environmentar manegement press	(New ETP with Aerobic, Anaerobic USAB, MBR
(f)	environmental management plan so far	
<u>م</u>	so far Actual expenditure incurred on the	Non-recurring (i.e. CAPEX) Rs. 615 Crore
e)	Actual expenditure incurred on the project	KS.9500 Clore for the expansion project in Deve
	environment management as shown above	Rs.9500 crore for the expansion project in 2015
d)	Whether (c) includes the cost of	

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PART – 11 & 111

DESCRIPTIVE REPORT ON STATUS OF COMPLIANCE FOR THE PERIOD OF APRIL 2016 - SEPTEMBER, 2016 TO CONDITIONS OF ENVIRONMENTAL CLEARANCE AND ENVIRONMENTAL MANAGEMENT

O.M. No.: . SEIAA/Guj/EC/5(e)&1(d)/124/2011 dated 23rdJune 2011 and its amendments dated 9th Aug 2011 (SEIAA/Guj/EC/5(e)&1(d)/160/2011) and 13th Sep. 2012(SEIAA/Guj/EC/7(e)276/2011)

SrN	Conditions of the Environment Clearance	Compliance	to the c	onditions	of the EC	
	ecific Condition				_	
<u>A.1</u> 1		It has been info consumption in p 1,15,420 KLD. requirement for th KLD thus has not limit of 1,14,320 F The summary of the reporting period of is presented as b Frest Prescribed	een less than fresh water 16 was 76,791 ne permissible nption during ovided by PP			
			Avg	Min		
		1,14,320	76,791	56,762	83,391	
	It shall be met from river Narmada through Jackwells at Angareshwar No ground water shall be used for the project	Narmada through Jack wells at Angareshwar wi prior approval from Irrigation department for wath drawl. Copy of letter has been submitted separately Complied. It has been stated that no ground water is used site. The water requirement for the complex is m through Narmada water as mentioned in th				
2	The industrial wastewater generation shall not exceed 44,600 KLD after the proposed	f effluent generation after commissioning of the				
	expansion	PTA and PET pl of Apr'16 –Sep' the permissibi Data for effluent April-Sept'16 is submitted to GP0	16 thus le lim generat as bel	has not be it of 4 ion quantity ow which	een exceeded 14,600 KLD. y for the period is also being	

-**5**-

			Efflu	ent Gene (KLD)	eration		
		Permissible Limit	A A	vg	Win		ax
		44,600	36	,497	34,505	39,14	45
		Complied.				1 - 1-	
3	The company shall provide ETP consisting of primary, secondary and tertiary treatment facilities for treatment of the effluents from the proposed plants	The wastewa in Effluent tr Secondary a Complied.	eatmen nd Terti	t plant ary efflu	consistin Ient treat	g or Pri ment un	mary its.
4	The ETP shall be operated regularly and efficiently so as to achieve the GPCB norms at the outlet.	The ETP is has achieve review period A summary period Apr-S below.	d the G d of Apr of efflu	3PCB di 16-Sep Ient mol	scharge '16. hitoring T	norms (results f	durin or th
		Parameter	Unit	GPCB Conse nt Limit	Avg	Min	Ma
		рН		5.5-9.0	7.40	6.82	7.62
		TSS Oil &	mg/l mg/l	100 20	15.33 ND	10.00 ND	ND
		grease Phenolic compounds (as C ₆ H₅OH)	mg/l	5	ND	ND	NC
		Cyanide (aṡ CN)	mg/i	0.2	ND	ND	NE
		Fluorides (as F)	mg/l	15 .	0.46	0.36	0.5
		Sulphides BOD	mg/l mg/l	5	2.29	14.00	2.0
			mg/i	250	119.50	92.00	16
		Total Chromium (as Cr)	mg/l	2	ND	ND	
		Hexavalent Chromium (as Cr ⁺⁶)	mg/l	1	ND	ND -	N
		Bioassay Test	fish af	in 100%	observ	nvival of fi ed after 96 6 effluent	
		From abov is operatin results are	a regul	arly and	d efficier	utly and	all
		Detailed tr been subm				ing rep	ort ł
5	Out of 44,600 KLD of treated effluen 14,080 KLD shall be reused/recycled ir cooling tower, green bel development/horticulture etc.	n quantity fro	n inform om the ew perio	complex od Apr-S	k is arou Sep'16, o	nd 14,00 ut of the	00 K 236,4

142.00

			The summary of treated eff given as below.			
			Aspeci	Permissible Limit (in KLD)	Avg. quantity during Apr- Sep'16 (in KLD)	
			Effluent generation	44,600	36497	
:			Effluent Recycle	14,080	13,789	
			Percentage of Effluent recycling	32 %	38 %	
			It can be seen from is recycled quantit prescribed , it is mo itself is almost 8000	y is marginal re in % as efflu	ly lower than	
			Complied.			
		Whereas rest of 30,520 KLD shall be discharged into the deep sea (Gulf of Cambay) through the existing effluent disposal pipeline equipped with multiport diffuser.	It has been inform 22,618 KLD of trea RIL-DMD into Gulf area through existi during this period c diffuser is provided discharge line for pro	ated effluent di of Cambay in ng effluent dis of Apr- Sept 20 at the end of f	scharged from the deep sea sposal pipeline D16.A multiport treated effluent	
			The average effluen as provided by PP is	presented belo	ow:	
			Description	Permissible Limit (KLD		
			Quantity of Effluent Discharge	30,520	22,618	
			It can be seen from average effluent d exceeded the perm during reporting peri	ischarge from nissible limit o	the has not	
			Complied.			
	6	The unit shall provide metering facility at the inlet and outlet of the ETP and maintain the records of the same	Metering facility i.e provided at the inlet are maintained.			
			Complied.	•		
		Also provide online monitoring system for pH, TDS, & TOC parameters at the outlet	Online pH, TOC, BC provided at the outle		S analyzers are	
-		of the ETP	It has not been exp facility for TDS not p		why the online	
		•	Almost complied.			
	7	A proper logbook of ETP operation and so showing the quantity of effluent generated, utilized for plantation/gardening etc. shall be maintained and furnished to the GPCB from time to time	Logbook of ETP or includes quantity recycled within the The same has been to time as and when	of effluent gr complex for C furnished to G	eneration and Sardening, etc.	

- S. Cl. Dog ^{ra} Circe								
		The details of quantity of effluent generation recycle are given in condition no. 5.						
8	Regular performance evaluation of the ETP shall be undertaken every year to check its adequacy through credible institutes like LD college of Engineering, NPC or such other institutes of similar repute. Its records shall be maintained.	 It has been informed that Performance evaluation of ETP by external agencies is being carried of regularly through environmental auditor appointed by GPCB and the records are maintained 						
9	The effluent disposal pipeline shall be monitored regularly by the company. It shall be ensured that there is no leakage from the pipeline	being regularly checked by site mointenance						
	In case of any such eventualities, the company shall immediately stop disposal through pipeline and take the corrective measures in consultation with the GPCB and the District Collector							
10	The post project environmental monitoring through the reputed institutes / organizations shall be carried out in order to assess the changes if any in coastal environment due to disposal of effluent	Complied. The post project environment monitoring of coastal environment has been carried out by NIC while carrying out EIA of subsequent projects to assess the changes. There was no adverse impact observed on the coastal environment due to RIL DMD.						
	The unit shall join and participate financially and technically for any common environmental facility infrastructure as and when the same is taken up either by GIDC or GPCB or any such authority created for this purpose by the Govt/GIDC	Complied. It has been stated that during the review period of Apr-Sep'16, no such proposal came from GIDC GPCB. RIL will participate financially and technically in any such project proposed or being taken up by Govt/GIDC/GPCB.						
12	Air Only natural gas shall be used as a fuel in the proposed expansion.	Complied Only PTA and PET plants have been commissioned out of proposed plants of this EC. Natural gas is being used as a fuel in the PET plant during review period of Apr-Sep'16. Whereas PTA plant does not require any fuel as it has no furnace, boilers, heaters or vaporizers.						
13 A	All fuel combustion units shall be operated with min. excess air so that fuel	Complied. All fuel combustion units are reportedly operated at minimum excess air to optimize fuel						

	· · · · · · · · · · · · · · · · · · ·	I antimize the cirtual action Dy controlling the de-
		optimizing the air/fuel ratio. By controlling the flo of air, NOx generation is minimized.
		Complied.
	Tangential / low NOx burners in all combustion units with online analyser shall be implemented in the proposed plants.	Low NOX burners have been provided in th combustion units with online analyzers in th plants.
		Complied.
14	Process emission like SO ₂ , NOx, PM, etc. shall be controlled with the adequate air pollution control equipment (APCEs).	Adequate Air Pollution Control Equipmen (APCEs) for controlling process emissions suc as SO ₂ , NO _x , PM, etc. have been reported provided in the stacks to meet the prescribe norms. The summary of PTA and PET stack emission monitoring résults for the period Ap Sep'16 as provided by PP is presented as below.
		Plant Param APCE GPC Avg Min Max eter B Limit
	A	PTA PM Hydro- 150 ND ND ND Plant - (mg/N sonic Stacks m³) scrubb attach er ed to followe
		Off SO2 d by 40 ND ND gas (mg/N cyclon scrubb m ³) e er, separa separa separa
		atmos NOx tor 25 ND ND ND pheric (mg/N scrubb m ²) &vent scrubb
	<i>·</i> .	er PET-3 PM Low 150 9.06 7 12 Plant - (mg/N) NOx Stacks m ³) burner 100
		attach SO2 ed to (ppm) 100 2.85 2.04 3.83
		Heater NOx 50 11.2 9.26 14.29 s (ppm)
		The above results indicate that the values are we within the norms prescribed by GPCB.
		Detailed monitoring report has been provide separately.
	These APCEs shall be operated efficiently	Complied. The above results are complying with the norm
	and effectively to achieve the norms prescribed by the GPCB at stack/vent outlets	prescribed by GPCB and PP submits that thi indicates that APCE provided at PTA and PE
		plants are operating efficiently and effectively. Complied
15	Stacks and vents of adequate height as per the prevailing norms along with port holes and sampling facilities shall be	Stacks and vents of PTA & PET plant are having adequate height as per the prevailing norms along with port holes and sampling facilities.

		with 60 meter height has been provided withport holes and sampling facility. It complies with prevailing norms of stack height. The summary of the stack emission monitoring report for period of Apr-Sep'16 is given in condition no 14. Detailed monitoring report has been provided separately.
10	The company shall install online monitoring	Complied. Continuous online monitoring equipment have
216	system in the proposed plants with an arrangement to reflect the monitored data	been installed for all stacks.
	on the company's server , which can be accessed by the GPCB on real time basis	During Apr-Sep 16, the access of online stack monitoring results for 11 stacks out of 39 stacks is given to CPCB. For remaining stacks the connectivity to CPCB and GPCB is ready for connecting.
	"А	However, on arrangement to reflect the monitored data on the company's server, which can be accessed by the GPCB on real time basis, the action is yet to be completed. This may be intimated on completion.
		Partly Complied
17	The fugitive emission in the work zone environment shall be monitored. The emissions shall conform to the standards prescribed by the concerned authorities from time to time(e.g. Directorate of Industrial Safety & Health)	The fugitive emission in the work zone environment (i.e. Work place environmental monitoring) is monitored periodically for existing facilities including PTA and PET plant. Occupational exposure is compared against standards prescribed by the concerned authorities periodically (e.g Directorate of Industrial Safety & Health &ACGIH (American Conference of Governmental Industrial Hygienist)
		Standards need to be mentioned and compared in a tabular form and submitted in future compliance report. Without comparison of values with standards, full compliance may not be accomplished.
		Partly complied
	Following steps shall be taken to reduce the fugitive emission of VOCs:	PP informed of the following actions:
	Provision of internal floating roof tanks with flexible double seal for storage tanks	Storage Tanks are stated to be designed as per API standard in the PTA and PET plants and it is provided with internal floating roof with flexible double seal.
	· .	Complied.
	Provision of mechanical seals in pumps	Mechanical seals are provided in the pumps / compressors of the PTA and PET plants. Complied.
	Regular inspection of floating roof seals and proper maintenance of floating roof seals for existing tanks	Regular inspection and properpreventive maintenance of floating roof seals isbeing carried out.

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pollution control systems shall be undertaken every year to check its adequacy, through credible institutes like LD college of Engineering, NPC or other such other institutes of similar repute, and its records shall be maintained and furnished to the GPCB from time to time Complied.			
Preventive maintenance of valves and preventive maintenance of valves for critical services such as high vapour pressure components and chemicals. Implementation of Leak Detection and Repair Program (LDAR) is implemented through the task of incinerators at a regular interval and monitoring is being done you specified to preve preventive and prevised of Apr-Sepified in PTA and PET plants and monitoring is being done you specified and preversion of the existing preventive and chemicals. Implementation of Leak Detection and Repair Program (LDAR) is implemented through out in complex including PTA and PET plants and monitoring is being done you spontable VOC detection instrument by using portable VOC detection instruments. Complied Regular performance evaluation of the air in the stacks of incinerators at a regular interval and monitoring is being regular interval to keep close wigit on such emissions due to undertaken every vera to check its andequery, through credible institutes like and put preverse shall be maintained and to prever to check its andequery through credible institutes with incide preformance evaluation of APCE preversite of the preversite of thereation of APCE preversite of the preversite of the preversite of t			
regular skimming of oil from separators / equalization basin in the ETP Regular skimming of oil from oil separators / equalization tank is carried out in the ETP. The collected oil is then transferred to Slop oil tank. Pugtitive emission monitoring at regular intervals Fugitive emission monitoring is cone in all plants ar regular intervals through the Leak Detection and Repair Program. Strengthening /maintaining existing green belt - strengthening /maintaining existing green belt - bilt - use of high grade gasket material for packing and Provision of motor operated valves for critical services such as high vapour pressure components and chemicals. High grade gasket material for packing and Provision of motor operated valves for critical services such as high vapour pressure components and chemicals. Implementation of Leak Detection and Repair Program (LDAR) is implemented throughout the complex. Complied. monitoring of dioxin and furan from the to burning or gano-chlorine compounds, if any critical services in instruments. Not applicable as no incinerator is installed in PTA and PET plants. 18 Regular performance evaluation of the air polution control systems shall to burning orced shall be maintained and diversity. Performance evaluation of APCE Department of Civil applicable by cords and be provided to the GPCB from time to time to time to such shall be maintained and diversity. 19 The company shall install and operate continuous ambient Air Quality Monitoring Station of the cords shall be maintained and furnished to			Preventive maintenance of valves and other equipment is being done regularly in the plants as
/equalization basin in the ETP equalization tank is carried out in the ETP The collected oil is then transferred to Slop oil tank. Fugitive emission monitoring at regular intervals Fugitive emission monitoring is done in all plants at regular intervals through the Leak Detection and Repair Program. Complied. strengthening /maintaining existing green belt Fugitive emission monitoring is done in all plants at regular intervals through the Leak Detection and Repair Program. Complied. strengthening /maintaining existing green belt Strengthening of green belt through gap plantation and maintenance of the existing greenbelt spread over the area of 70 ha is being done. use of high grade gasket material for packing and Provision of motor operated valves for critical services such as high vapour pressure components and chemicals. High grade gasket material for packing is used and motor operated valves for critical services such as high vapour pressure components and chemicals are provided. implementation of Leak Detection and Repair Program (LDAR) is implemented throughout the complex including DTA and PET plants and monitoring is being done by using portable VOC detection instrument 18 Regular performance evaluation of the air poliution control systems shall be maintaned and furna from time to time 18 Regular performance evaluation of the air poliution control systems shall be maintaned and furnished to the GPCB from time to time 19 The company shall install and operate continuous ambient air ugulary to component Complied. 19 The company sha			Complied.
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19 The company shall install and operate Continuous Ambient Air Quality Monitoring Station continuous ambient air quality monitoring (CAAOMS) is installed within the promises	18	pollution control systems shall be undertaken every year to check its adequacy, through credible institutes like LD college of Engineering, NPC or other such other institutes of similar repute, and its records shall be maintained and	systems by external agencies is being regularly carried out through environmental auditor appointed by GPCB. Department of Civil Engineering, Dharmasinh Desai University, College Road Nadiad has done Annual audit which includes performance evaluation of APCE for the year 2015-16. The report is submitted
continuous ambient air quality monitoring (CAAOMS) is installed within the promises			Complied.
	19	continuous ambient air quality monitoring	Continuous Ambient Air Quality Monitoring Station (CAAQMS)is installed within the premises

1111		Complied.
	The monitoring station shall be fixed in	
	consultation with the GPCB	consulting GPCB official in his visit and af
1.5		getting their concurrence.
A 3	Hazardous /Solid Waste	Complied
120	The company must strictly comply with the	Hazardous wastes generated from PTA and Pt
	rules and regulations with regards to handling and disposal of Hazardous waste in accordance with the Hazardous Waste (Management, Handling and	plants is reported to be managed in accordant with the Hazardous Waste Rules, 2008, amendments. The authorization obtained fro GPCB under these rules vide Authorization.
	Transboundary Movement) Rules, 2008 as may be amended from time to time	No. W-76082 dtd. 04.02.2016, valid up 03.11.2020,
21	Authorization from the GPCB must be	Complied.
	obtained for collection/treatment / storage/disposal of hazardous wastes.	and the second of the second o
		The hazardous waste is being disposed as per methods prescribed in the Authorization.
		Copy of Form-4 submitted to GPCB for year 2015 2016 has been provided separately.
		Complied.
22	The hazardous wastes shall be stored in separate designated hazardous waste storage facility with impervious bottom and leachate collection facility before its disposal.	Hazardous wastes at respective plants are store in a designated area having impervious bottor with peripheral drain for collection of leachate /spill.
23	ETP sludge, incinerator ash etc. shail be	Complied.
	disposed in the secured landfill site	ETP sludge is being disposed in the secure landfill site of BEIL, Ankleshwar.
		Incinerator is not installed for PTA and PET plants hence there is no generation of Incinerator ash.
	771 La	Complied.
∠4	The wastes like spent resins from phenol plant, spent oxide filter cartridges, spent charcoal, adsorbents, oil cotton rags etc. shall be disposed by incineration.	Phenol plant is not established hence spent resir from it is not generated. Other wastes are handled as per the Hazardous Waste authorization granted by GPCB. It was clarified later that incineration is being followed for waste disposal.
25		Complied.
20	spent molecular sieve etc., and shall be sold only to the registered reprocessors / recyclers.	Spent catalysts, spent lead acid batteries, degraded dowtherm, spent molecular sieve etc., are sold only to the registered reprocessors / recyclers.
26		Complied.
	authorised recyclers after decontamination.	Discarded containers/barrels /bags generated from respective plants get decontaminated, abelled as Decontaminated and then sold to the authorized recyclers as per GPCB directives.

		Dedicated drum decontamination facility has been provided for all plants including PTA and PET plants.
		Complied.
	Used oil shall be sold only to the registered recycler	Used oil is reported to be sold to the registered recyclers/reprocessors.
	Safety	Complied.
77-28. 2015 2015		Provisions of the Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules 1989 as amended in 2000 and Factories Act, 1948 are stated to be complied by ensuring the following activities :
		 Preparation of safety audit report (submitted to DISH regularly) Preparation of emergency response plan Conducting mock drills on regular basis Provision emergency alert system like sirens, announcement etc. and ensuring their healthiness Mutual aid arrangement with neighboring industries.
29	Recommendations made in the Risk Assessment Study Report submitted by the project proponent shall be implemented	Complied. Recommendations made in the risk assessment study report are stated to be implemented and complied with for existing units including PTA and PET plants. e.g.
		 Constructed control rooms blast proof & shock proof wall. Storage area is separated from process areas and flammable materials Provided proper dyke for storage tanks with fire protection measures
		Complied.
30	All necessary precautionary measures shall be taken to avoid any kind of accident during storage and handling of: Toxic chemicals or Hazardous chemicals.	Following safety measures have been stated to be adopted by PP to avoid accidents at the site during storage and handling of toxic / hazardous chemicals: • Separate dyke area provided for the
		 different products and storage areas Storage areas are separated from building process areas and flammable materials.
		 Level indicators, trips & alarm systems. Adequate Fire protection systems are provideo.
.31		Complied. All materials are reported to be stored only in

i before commencing the expansion	has been obtained for the same.
	Complied.
Storage and use of hazardous chemicals Spall be minimized to the extent possible	Hazardous chemicals are stated to be stored only as per the requirement matching with the production capacities and permission granted by PESO.
	Complied.
mitigate the risk generated out of it.	Necessary precautions are reportedly taken for safe storage / handling of hazardous / toxic chemicals as detailed in point no. 30. Complied.
Storage of hazardous chemicals shall be in multiple small capacity tanks/containers instead of one single large capacity tank for safety purpose.	Hazardous chemical storage quantities are stated to be maintained only in minimum quantity as per requirement. The chemicals are stored in tanks of optimum size instead of small quantity capacity tanks for safety purpose.
avoided and Garland drain be constructed to avoid mixing of accidental spillages with domestic wastewater or storm water	Adequate control measures are informed to be taken to avoid spillage during material transfer job. Dedicated Garland / drainage network has been
	established in PTA and PET plants to avoid mixing of accidental spillages with domestic wastewater or storm water.
	Complied.
All the storage tanks shall be fitted with appropriate controls to avoid any leakages, bund/dyke walls shall be provided for storage tanks for Hazardous Chemicals.	As stated, all storage tanks has Proper safety mechanisms including level indicators, level alarms, bund/dyke walls are provided to avoid leakages / spillages of hazardous chemicals.
· · · · · · · · · · · · · · · · · · ·	Complied.
Close handling system for chemicals shall be provided	Chemicals from the storage tanks are reportedly transferred to the reactors in an automated manner with a closed loop system to avoid any manual exposure.
	Complièd.
Tie up shall be done with nearby health care unit for seeking immediate medical attention in the case of emergency, regular medical check-up of the workers and keeping its record etc.	Occupational Health Center (OHC) is established at the petrochemical complex for providing immediate medical help in case of emergencies. Periodical medical checkup done for the RIL employees as well as for contract workers and records are maintained for the same. However tie up is said to be not feasible due to around 45 km distance of nearby health care.
· · ·	This condition and compliance needs to be reviewed since objective seems to be fulfilled although not as per mandated condition. Therefore, for the reporting period this may be taken as complied.
Porcopol protoctivo continuente de la f	Complied.
Personal protective equipments shall be provided to workers and its usage shall be ensured and supervised.	Personal Protective Equipments (PPEs) are provided to employees and contractors and are stated to be compulsory before entering the plant.
	 Storage and use of hazardous chemicals Shall be minimized to the extent possible and. All necessary precautions shall be taken to mitigate the risk generated out of it. Storage of hazardous chemicals shall be in multiple small capacity tanks/containers instead of one single large capacity tank for safety purpose. During material transfer, spillages shall be avoided and Garland drain be constructed to avoid mixing of accidental spillages with domestic wastewater or storm water All the storage tanks shall be fitted with appropriate controls to avoid any leakages, bund/dyke walls shall be provided for storage tanks for Hazardous Chemicals. Close handling system for chemicals shall be provided Tie up shall be done with nearby health care unit for seeking immediate medical attention in the case of emergency, regular medical check-up of the workers and keeping its record etc. Personal protective equipments shall be provided to workers and its usage shall be

			This is being ensured regularly. However, this needs strict enforcement as during visit al employees were not found wearing PPEs.			
			Complied.			
		First-Aid Box and required antidotes for the conemicals used in the unit shall be made creadily available in adequate quantity.	First Aid box is available at strategic locations in			
			Complied.			
		Training shall be imparted to all the workers on safety and health aspects of chemicals handling.	It is reported that Training is imparted to all the			
			It is informed that the chemical handling related, safety and health training is imparted to all workers on RIL role and all contractor workers as well			
			The level-1 and level-2 training is provided to the contract workers which includes the safe work practices related to safe chemical handling and use of PPEs.			
			At RIL-Dahej, employees are imparted safety training through induction and refresher training on safe work practices, safe chemical handling and use of PPE.			
			and use of PPE.			
	39	Occupational health surveillance of the	Complied.			
		workers shall be done and its records shall be maintained	Occupational health surveillance of the workers is done and its records are maintained. Complied.			
		Pre-employment and periodical medical examination for all the workers shall be undertaken as per the Factories Act & Rules.	Pre-employment and periodical medical examination is carried out by OHC annually and records are maintained. It is said that these as per the Gujarat Factories Act & Rules.			
. [Complied.			
	40	Handling and charging of the chemicals shall be done in such a manner that minimal human exposure occurs.	Raw materials from the storage teaks are stated			
			Complied			
	41	Transportation of hazardous chemicals shall be done as per the provisions of the Motor Vehicle Act & Rules.	Transportation of hazardous chemical is stated to be carried out as per the Motor Vehicle Act & Rules like:			
			 Emergency information panel on Carrier The product name, UN number, and CTU (Container carrier unit) identification number on the shipping document. 			
			 Training imparted to drivers by RIL Driver SafetyTraining Center and it is valid for one year for liquid / gas carrier drivers and two year for carrier driver. 			
			 Refresher training also shall be given by Driver Safety Training Center. 			
			TREM Card. Instruction to drivers on emergency			

27 B-		
115		situations.
がない		Complied.
5	Noise	
	To minimize the noise pollution the following noise control measures shall be implemented.	These measures are reportedly ensured in the PTA and PET plants by addressing the requirements during the design phase itself. Following have been submitted by the PP:
	Selection of any new plant equipment shall be made with specification of low noise levels	Low noise generating equipment have been selected in the design stage itself.
	Manufacturers / suppliers of major noise generating machines / equipments like air compressors, feeder pumps, turbine generators, etc. shall be instructed to make required design modifications wherever possible before supply and	Low noise generating equipment have been selected in the design stage itself. Equipment meet the national regulatory norms.
	installation to mitigate the noise generation and to comply with the national / international regulatory norms with respect to noise generation for individual units	
	Regular maintenance of machinery and vehicles shall be undertaken to reduce the noise impact	Regular & preventive maintenance of machinery and vehicles is undertaken.
	Noise suppression measures such as enclosures, buffers and /or protective measures shall be provided.	Noise suppression measures like acoustic chambers are provided wherever required.
	Employees shall be provided with ear protection measures like earplugs and earmuffs.	PPEs like ear muffs and ear plugs are mandatory for use by everyone working in high noise areas.
-	Proper oiling, lubrication and preventive maintenance shall be carried out of the machineries and equipments to reduce noise generation	Proper oiling, lubrication and preventive and regular maintenance of machineries and equipment is done to reduce noise generation.
	 Construction equipment generating minimum noise and vibration shall be chosen 	Construction equipment generating low noise and vibration was chosen during the erection of the plant.
	Ear plugs and/muffs shall be made compulsory for the construction workers working near the noise generating activities / machines / equipment.	Use of PPEs like ear plugs /ear muffs are made compulsory at site. It is being ensured and supervised through work permit procedure, Contractor Field Round and Daily Field round by Plant Safety Representative at plants.
	 Vehicles and construction equipment with internal combustion engines without proper silencer shall not be allowed to operate. 	Vehicles and construction equipment with internal combustion engines without proper silencer were not allowed to operate during the erection of the plant.

ion equipment meeting the ad by EP Act, 1986 shall of htrol equipment and bafflin by ed on generators en they are operated near d sensitive areas. els shall be reduced by the the mufflers on all motoriz oise level in and around shall be kept well within andards by providing r asures including aco bods, silencers, enclose opers etc. on all source ion.	ng r the re ed t the the noise ustic ures,	monitoring reports presented below :	ct, 1986 wer of the plants ting DG sets is with in it tive zone near or motorized all the motorized al	are being ndustrial : arby. equipme zed equipme as acoust e been pr with-in t ce Nois od Apr-Se ce Noise Le	uring the g used a zone. N ent: hav ment ic hoods rovided a he plan e Leve apt' 16 i
ad by EP Act, 1986 shall on htrol equipment and bafflin byed on generators en they are operated near d sensitive areas. Hels shall be reduced by the te mufflers on all motoriz oise level in and around shall be kept well within andards by providing re- asures including aco bods, silencers, enclose opers etc. on all source	ng r the re ed t the the noise ustic ures,	specified by EP A construction phase Low Noise generat the site. The site residential or sensi Noise mufflers for been provided on a Complied. Noise control mea silencers etc. are s high noise genera The summary monitoring reports presented below :	ct, 1986 wer of the plants ting DG sets is with in it tive zone near or motorized all the motorized al	are being ndustrial : arby. equipme zed equipme as acoust e been pr with-in t ce Nois od Apr-Se ce Noise Le	uring the g used a zone. N ent: hav ment ic hoods rovided a he plan e Leve apt' 16 i
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hall be kept well within andards by providing r sures including aco pods, silencers, enclosu ppers etc. on all source	the noise justic ures,	Noise control mea silencers etc. are s high noise genera The summary monitoring reports presented below :	stated to have ating source of Wokpla for the peri Workpla	e been pr with-in t ce Nois od Apr-Se	rovided a he plan e Leve ept' 16 i
					vels in
• -		Plants		dB(A) le limit 85 d	
			Avg	Min	
		Chlor Alkali Plant	61.88	57.20	67.90
		VCM Plant	*58.78	53.50	61.60
		PVC Plant	62.55	51.20	73.30
		EO-EG Plant			67.00
	İ				70.30
					63.60
					55.80 69.50
					84.60
		· · · · · · · · · · · · · · · · · · ·			74.40
					76.70
				52.40	59.80
			55.42	48.90	59.30
		PTA-5	59.18	35.50	75.40
		PTA-6	53.49	43.50	62.50
		IOP - Air Separation	61.07	59.50	61.80
		IOP - Compressor	57.00	56.10	58.20
		IOP - Raw Water	62.10	58.10	64.30
		IOP - Fire water treatment plant	60.02	57.60	66.50
			PVC PlantEO-EG PlantGCU-PlantEPRUOSBLHDPECPP ICPP IICPP IIIPTD (Tankfarm)PET-3PTA-5PTA-6IOP - Air SeparationUnitIOP - CompressorHouseIOP - Raw Watertreatment PlantIOP - Fire watertreatment plantIt can be seen frnoise level in& aroprescribed limit of	PVC Plant62.55EO-EG Plant59.90GCU-Plant66.39EPRU60.64OSBL53.42HDPE62.51CPP I62.14CPP II65.89CPP III62.23PTD (Tankfarm)56.32PET-355.42PTA-559.18PTA-653.49IOP - Air Separation61.07UNIOP - Raw Watertreatment Plant62.10IOP - Fire water60.02It can be seen from the abonoise level in& around the planprescribed limit of 85 dB(A).	PVC Plant 62.55 51.20 EO-EG Plant 59.90 54.90 GCU-Plant 66.39 56.50 EPRU 60.64 58.20 OSBL 53.42 50.60 HDPE 62.51 50.20 CPP I 62.14 52.40 CPP II 62.23 45.20 PTD (Tankfarm) 56.32 52.40 PET-3 55.42 48.90 PTA-5 59.18 35.50 IOP - Air Separation 61.07 59.50 UOP - Air Separation 61.07 59.50 IOP - Compressor 57.00 56.10 IOP - Raw Water 62.10 58.10 IOP - Fire water 60.02 57.60 It can be seen from the above results noise level in& around the plant are well

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V A			including F day time a given conc	ind nig	ht time					
			The detaile Sep 16 has						Apr-	
		The ambient noise levels shall confirm to the standards prescribed under the Environment (Protection) Act and Rules.		oise le under es) a of the a	r EPA nd 7(ambier	Rules) dBA nt noise	, 1989 \ (Nigl e levels	viz, 76 ht time or Apr	5 dBA e).The	
			Monitoring	1	Day Tim	10	N	ight Tim		
			Location		nit : 75 d		Limit : 70 dB			
			Security Building	Avg 62.8	Min 61.3	Max 63.8	Avg 57.7	Min 55.8	Max 59.2	
			Guest House	58.7	57.1	59.8	55.5	54.1	57.1	
			Pump House	63.3	62.4	64.4	59.8	58.1	61.8	
		· ·	Main Fire Station	60.4 0	58.9 0	61.8	55.28	52.10	58.3	
			ETP	59,6	58.1	62.1	54.7	51.8	56.8	
			Jetty Jageshwar	52.2 52.8	50.4	53.2 53.9	49.9 49.3	48.1	50.9	
			The above levels durin not been ex Detailed mo separately. Compliad.	ig the r ceede	eportir d the p	ng perio prescrit	od Apr- bed limi	Sep'16 t.	has	
•		Workplace noise levels for workers shall be as per the Factories Act and Rules.	Workplace well below Factories A level is give	' the ct and	limit d Rules.	of 85 There	dB(A) esults o	as per	the	
			Complied.							
,	A.6 44	ENERGY CONSERVATION The project proponent shall install energy efficient devices and appliances conforming to the Bureau of Energy Efficiency norms	Energy effic provided in drives.	cient d the	evices plant	are si like v	ated to variable	have frequ	peen ency	
	45	The energy audit shall be conducted at regular intervals and the recommendations of the audit report shall be implemented.	Complied. As reported carried out Recommend implemented	once dations	in tw	o year	rs by	third p	arty.	
بە.	-		In future recommen action take these imp- cannot be	idatio en ela ortaní	ns to aborat t outo	ted as comes	nume s in at	rated osence	e of	
		1	Samot De	iuny (Jourh	<u>icu</u>				

			•
			· · · ·
			Portly Complied
		and the proponent shall implement the	Partly Complied. Use of Solar energy is already explored and under
		the shall be which shall be	evaluation and approval stage.
		refized as solar lighting for illumination of common areas, lighting of internal roads	Put is chould have done already. This is
		and passages in addition to utilization of	But, it should have done already. This is to be implemented at the earliest.
		solar water heating systems.	
			Under compliance.
	47	The transformers and motors shall have	
		minimum efficiency of 85%.	85% are reportedly selected at design stage itself by the PP.
		가슴이 있는 것이 있 것이 있는 것이 있 것이 있는 것이 있다. 것이 있는 것이 있	
		2] 1879년 - 19 19년 19	Còmplied.
	48	Wariable frequency drives shall be installed	Variable Frequency Drives are reportedly installed at PTA and PET plants.
			Complied.
	49	Energy conservation measures shall include use of electronic lighting system,	
		use of CFL tubes to minimize energy use,	implemented.
		use of programmable timers for pumping	in respect of and lighting, water level
		system and lighting, water level controllers for water pumps, centralized cooling etc.	controllers for water pumps, centralized cooling etc.compliance needs to be ensured.
		for water pumps, centralized cooling etc.	cooming etc.compliance needs to be ensured.
		19 19	
Angelan - Lans Sama - Lans Sama - Lans		· .	In future EC compliance report, detailed action taken of each item as mandated
			need to be elaborated .
			Complied
· .	50	Energy saving practices as follows shall be	Partly Complied.
	50	practiced:	The PP informed as under:
		 Constant monitoring of energy 	Department level targets have been fixed and
		consumption and defining targets for energy conservation.	energy consumption is monitored against those targets. Constant Monitoring of energy
		chergy conservation.	consumption is done by Energy cell with BEE
I			Qualified energy manager, energy auditor.
		Adjusting the settings and illumination	Illumination level audit is being carried out once in
		levels to ensure minimum energy used for	two years as a Part of Electrical audit. Sensors
		desired comfort level	have been provided in few office rooms to automatically switch off lighting in case of no
			movement in the room.
		Use of solar cells for lighting	Solar cells for traffic lights are installed.
1		: Use of solar water heater for canteen &	Use of Solar energy for water heating is already
		washing area.	explored and Solar water heater project is under
			ter retractions
		Proper load factor shall be maintained by	evaluation.
		Proper load factor shall be maintained by the unit	Adequate load factor is maintained.
بعر.			

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		maximum natural light in the production plant instead of electrical lighting.	warehouse areas.
		 Use of electronic ballast to save energy 	Electronic ballast is provided in lighting equipment.
		Automatic switching system for lighting and water tank pumping shall be used.	Automatic switching system for lighting are provided at various areas of plants. Automatic switching system for water tank pumping is also provided
		• To the maximum extent possible and technically feasible, energy efficient equipment like motors, pumps, air conditioning systems shall be selected.	Being complied.
		· Gravity flow shall be preferred wherever possible to save pumping energy.	Gravity flow has been utilized wherever possible.
		Promoting awareness on energy conservation	Regular training and awareness campaigns are carried out for all employees on energy conservation. RIL Dahej has 12 BEE certified energy professionals
		Training to the staff on methods of energy conservation and to be vigilant for this.	Training is being imparted regularly by our Learning and Development Department.
			Complied.
-	A.7	CLEANER PRODUCTION AND WASTE MI	
	51	The unit shall undertake the Cleaner Production Assessment study through a reputed institute / organization and shall form a CP team in the company. The recommendations thereof along with the compliance shall be furnished to the GPCB.	It is informed that the Site has adopted the best available technology for achieving resource reduction and waste minimization. It is reported that a Cleaner Production assessment study is planned and the PP is in touch with different institutes / organizations for the study. This is to be expedited as it remains not complying.
	İ	•	Not Complied.
	52	The company shall undertake the following waste minimization measures:	PP submitted the following:
- - -		a. Metering and control of quantities of active ingredients to minimize waste.	All active ingredients are metered at all the plant. Metering and control is provided for active ingredients to ensure waste minimization.
		b. Reuse of by-products from the process as raw materials or raw materials substitutes in other process.	Reuse of by-products is implemented wherever possible such as Productive management of waste residue streams is done in PTA plant by recovering Suspended solids powder resulting in reuse of solid waste.
		c. Use of automated and enclosed filling to minimize spillages	Automated and enclosed material transfer system implemented to minimize spillages.
	-	d. Use of closed feed system into batch	Closed feed system provided in the process units.

		the administrative buildings
	e. Dry cleaning / mopping of floor washing	Practiced at all the administrative buildings including plant control rooms.
	10201g	
	f. Use of high pressure hoses for cleaning to reduce wastewater generation.	High pressure hoses are used for cleaning which ensures reduction in wastewater generation.
		At plant level regular preventive maintenance of
	g. Regular preventive maintenance for avoiding leakage, spillage etc.	At plant level regular prevented and maintained in the equipment is carried out and maintained in the SAP system.
	-	Complied.
	GREEN BELT AND OTHER PLANTATION	It has been informed that around 70 ha of green
<u>A.8</u> 53	The unit shall develop green belt within premises as per the CPCB guidelines.	It has been informed that abund ye had a Dahej belt as per the CPCB guidelines at Dahej Petrochemical Complex. Trees have been planted throughout the periphery of the complex as well as wherever open spaces are available. Land scaping(through lawns and shrubs) have been done in areas where tree plantation is not possible. Every year plantation drive is being done to strengthen the green cover in the complex.
		During review period of Apr-Sep'16: 7,790 trees have been planted in and around the complex.
		Native plant species are selected for planting of the green belt as per the guidelines of CPCB. Few of the plant species existing at the site are: Casuarinaequisetifolia (Suru), Azadirachtaindica (Neem), Millettiapinnata (Karanj), Cassia siamea (Kashid), Albiziaprocera (Shirish), Delonixregia (Gulmohar), Peltophorumpterocarpum etc.
	In addition to that, the unit shall take u	Complied. p Adequate plantation carried out on road sides id near the site and open areas of GIDC near site.
	in addition to that, the drift addition to that, the drift addition to that, the drift addition on road sides and suitable open areas in the GIDC estation nearby schools, gram panchayat area and any other open areas in consultation with GIDC / local bodies / GPCB are submit an action plan of plantation for neithree years to the GPCB.	e, as During review period of Apr-Sep'16, 7,790 trees on is reported to have been planted in and around ad the complex. However, gap filling needs to be ext continued and proper density to be ensured.
		Complied.
В.	ADDITIONAL CONDITIONS	a To maximum recycle and reuse of effluent, the PF
54		
1		Complied
C . 55	control system adopted by the unit, the t	not of failure of pollution control system,
1	be restarted until the desired efficiency	

	i.	
		prevents the plant from restarting.
	the control equipment has been as	It is informed that during the period of Apr-Sep'16, no such failure of pollution control equipment has been observed.
6	The company shall strictly follow all the	Complied. Recommendations mentioned in the CREP are being complied. However, details may be
-	chapter on Corporate Responsibility for Chapter on Corporate Responsibility for	enumerated in future compliance reports.
	by the Central Pollution Control Sector	the been provided in all work
57	may be applicable. Pucca flooring / impervious layer shall be provided in the work areas, chemical storage areas and chemical handling areas to minimize soil contamination.	areas, chemical storage areas and a handling areas as required.
	N	Complied.
	Leakages from the pipes, pumps, shall be minimal and if occurs shall be arrested promptly.	leaks are promptly identified and anested.
		Complied.
	this made in the EIA.	Recommendations of EIAVLINI Here
59	All recommendations made in the EIA,	implemented.
	EMP and other documents Submitted by	
	the project proponent shall be survey	
60		
00		
	of the environmental protection and	
ļ	of the environmental procession	
61	No further expansion or modifications in	n Expansion or Modification of the RL-DML or complex has been carried out after obtaining the
	approval of the MoEF / SEIAA, as the cas may be. In case of deviations or alteration in the project proposal from thos	EIA Notification, 2006.
	clearance, a fresh reference shall be mad	le lts expansion took place with the EC taken the 2007,2008& 2011.
	adequacy of conditions imposed and add additional environmental protection measures required, if any.	further expansion of this petrochemical complex.
		It has been stated that no changes/deviation have taken place at the DMD complex during th review period.
		Complied.
1	2 The project authorities shall earma	ark As submitted by PP, adequate fund have be
	2 The project authorities shall earns	
6	adequate funds to implement	as stipulated conditions given by den version
6	adequate funds to implement to conditions stipulated by SEIAA as well GPCB along with the implementat schedule for all the conditions stipula herein.	as stipulated conditions given by CL, stern
6	adequate funds to implement conditions stipulated by SEIAA as well GPCB along with the implementat schedule for all the conditions stipula	as stipulated conditions given by CE, stands ion ted Recurring expenditure incurred to comply with t conditions stipulated by MoEF/ SEIAA/GPCB

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	The funds so provided shall not be diverted for any other purpose.	Funds allocated for Environmental management is used only for that purpose and stated to be not diverted for any other use. Complied.
63	The applicant shall inform the public that the project has been accorded environmental clearance by The SEIAA and that the copies of the clearance letter are available with the GPCB and may also be seen at the Website of SEIAA / SEAC / GPCB. This shall be advertised within seven days from the date of the clearance letter, in at least two local newspapers that are widely circulated in the region, one of which shall be in the Gujarati language and the other in English. A copy each of the same shall be forwarded to the concerned Regional Office of the Ministry.	As informed, the public was informed through public notice published published in English New Paper in Times of India on 13.09.2011 and Gujarati Newspaper in Divya Bhaskar on 11.09.2011 and the information has also been forwarded to the Regional Office of the MoEF Bhopal.
64	It shall be mandatory for the project management to submit half-yearly compliance report in respect of the stipulated prior environmental clearance terms and conditions in hard and soft copies to the regulatory authority concerned, on 1st June and 1st December of each calendar year.	
65	The project authorities shall also adhere to the stipulations made by the Gujarat Pollution Control Board.	Complied
66	The project authorities shall inform the GPCB, RO of MoEF and SEIAA about the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.	The PP informed that the project is already commenced and the necessary information about the 'project's financial closure and project commencement was provided along with the first compliance report of this EC. Complied
67	The SEIAA may revoke or suspend the clearance, if implementation of any of the above conditions is not found satisfactory.	This condition is not applicable to PP
68	The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Pollution) Act, 1981, the Environment	cognizance.
	(Protection) Act, 1986, Hazardous Wastes (Management, Handling and Trans boundary Movement) Rules, 2008 and the Public Liability Insurance Act, 1991 along with their amendments and rules.	
69	This Environmental Clearance is valid for five years from the date of issue.	Taken cognisance of.

Summary and inference:

The compliance seems to be generally good. Of the total of 69 conditions, 58 are fully complied, 1 is almost complied, 4 are partly complied, 1 is under compliance, 2 are found not applicable, 1 is not complied and 2 require to be taken cognisance. The inadequacies and deficiencies and guidelines for future compliance have been indicated in bold letters against these conditions.

Court case and Notices:

It has been reported that there is no court case on this project

Details of Notices issued during last three years Reply from PA Details of Directions by CPCB/ Date Date Show Cause Notice (SCN) Replied to notice with supporting issued by GPCB, if any Show Cause Notice issued by No. evidences as we are regularly Letter RIL/HSE/E/47 submitting the details as a part of Letter no. GPCB regarding observation of GPCB-HAZdated GPCB Monthly Report in hard copy no submission of monthly data 4 19.06.2015 to GPCB Regional Office Bharuch of hazardous waste disposed / GEN-503/316347 and GPCB Gandhinagar and also incinerated at our captive are submitting the required details in TSDF/Incinerator and foresaid dated GPCB XGN portal. Therefore it is 04.06.2015 details. resolved. The query was resolved and no further action has been initiated. Replied to letter with following details No. 1. Documentary evidence regarding Directions issued by CPCB Letter RIL/HSE/E/47 no.: CAPEX raised for installation of Letter under regarding installation of online emission & effluent monitoring B-29016/ on-line effluent and emission 4/2908/PC 04/06/PCIdated monitoring systems system. 1/44989 dtd. 29.08.2015 2. Letter to CPCB through CPMA 24.07.2015 dtd. 24.06.2015 providing time received on completion of for schedule 24.08.2015 establishing online facilities and connecting to GPCB/CPCB server by December 2016. Continuous Emissions Monitoring installed and is System commissioned in all stacks and at ETP outlet.

Scientist 'F'

ned By: Counter Addl PGEF (C)